ECOSMIC'21

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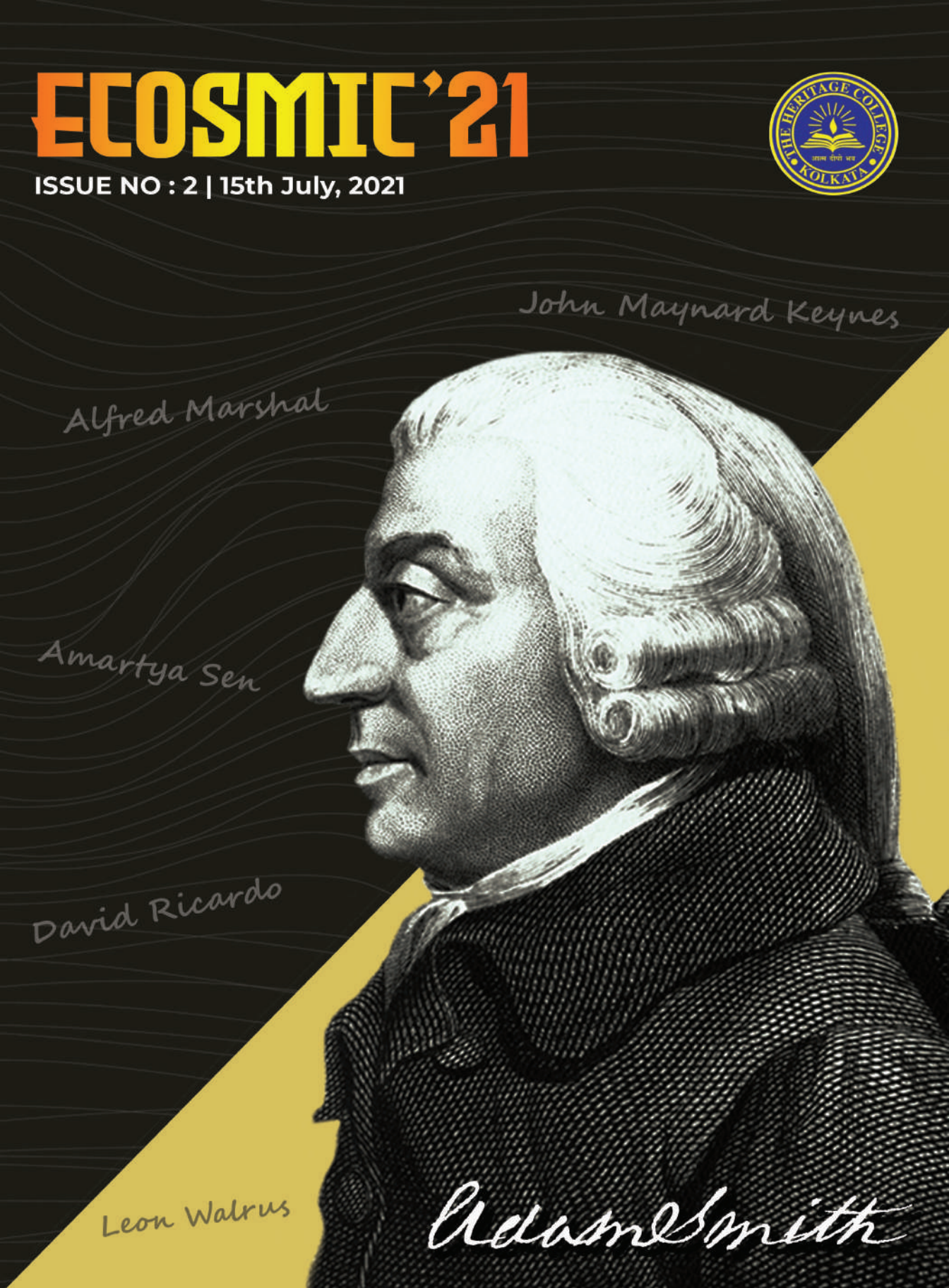

ECOSMIC'21

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FROM THE PRINCIPAL'S DESK

It is a matter of great pride that our Economics Department under the supervision of Dr Debashis Mazumder, Head of the Dept., has been performing so well that no word is sufficient to appreciate it. This activity helps to express the innovative ideas of the future economists of our country. Not only this, by publishing this second issue of the e-Magazine of the Department of Economics, viz. ECOSMIC'21, they have proved that they have firm faith in the words of Swami Vivekananda so far as the concept of all-round development is concerned.

I also take this opportunity to thank those faculty members who stood by the side of their students and extended their hands of cooperation to publish this e-Magazine even in this pandemic situation. The Department as a whole has proved that the subject matter of Economics is precisely CONSTRAINED MAXIMA. As they have taken this pandemic as the constraint and are able to maximize the objective of publishing the e-Magazine, I bless them from the core of my heart with the expectation that many such innovative ideas will see the daylight in the near future. It is worth mentioning that, the youngest faculty member of the Department of Economics, Prof. Puja Putatunda, being one of the best teachers of the subject, has toiled hard with her students to make my dream into a reality by performing the role of the Convener of THES. She has taken initiative and motivated all her students in this endeavour.

Dr Puspitaranjan Bhattacharya
Principal
The Heritage College

FROM THE DESK OF HOD, Dept. of Economics

It is a matter of great delight that the second issue of our departmental e-magazine ECOSMIC, viz. ECOSMIC'21 could be published in time. Though a severe pandemic situation has afflicted almost all the layers of our society, the energetic students of our department stood clasped in each others' arms and it is only through their affirmative action and ambitious planning along with the untiring help and cooperation from Dr Puspitaranjan Bhattacharya, Principal of The Heritage College, and our faculty members that this stupendous task of publishing an e-magazine could be finished in a smooth way.

This second issue of ECOSMIC, with its new look and ingredients, represents the apotheosis of many innovative ideas and some interesting collage of thoughts and artworks of both the students and faculty members. Thus, this issue can easily be considered as an invaluable compendium of some of these novel ideas, facts and figures. The student members and office bearers of The Heritage Economics Society (THES) have also taken an active initiative for the timely publication of this e-magazine. There is no doubt that the successful completion of many events by THES during the last two months has given its members the moral ascending over all the odds and they have proved their competence in accomplishing such difficult task. I personally feel that this publication process needs a proper harmony of brain and brawn. Hence, I congratulate all of my students and faculty members who are associated with

FROM THE DESK OF HOD, Dept. of Economics

(contd.)

this process and I can vouch for the honesty and dedication of the members of the editorial board particularly Rishabh Mukherjee, Adarsha Chatterjee, Arushi Choudhury and others. Our student Sushmit Ghosh (SEM-2) deserves special thanks for doing the most crucial job of designing the cover page of this issue.

However, there should not be any room for complacency at this stage since we have miles to go, and I conclude by uttering a few lines from Tagore:

"If thou speakest not I will fill my heart
With thy silence and endure it.
I will keep still and wait
Like the night with stray vigil
and its head bent low with patience.
The morning will surely come,
The darkness will vanish, and
Thy voice pour down in golden streams
Breaking through the sky.
Then thy words will take wing in songs
From every one of my birds' nests,
And thy melodies will break forth in flowers
In all my forest groves." (Gitanjali)

Thanks to all of my students and faculty members once again.

Dr Debashis Mazumdar
Professor & HOD,
Department of Economics,
The Heritage College.

FROM THE DESK OF HOD, Dept. of Commerce

I am happy to know that Heritage Economics Society is bringing out the second issue of the e-magazine ECOSMIC. Face-to-face communication has disappeared and the virtual world has captured our academic life. The pandemic has created a huge void in our existence because of the ad hoc and very often imperfect mixing of the real world and the virtual world. We are all on the newly emerging learning platform and trying to bridge the gap between the existing real world and the emerging virtual world. In such a milieu, the students of the Economics Department deserve congratulations for this fine piece of work. I am sure that ECOSMIC will become a regular publication of the Economics Department.

Prof.Amitava Ghose
HOD, Department of Commerce,
The Heritage College.

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TEACHERS & ALUMNI SECTION

E-mobility in Indian Automobile Sector: Graffiti of a New Challenge

- D.Mazumdar[1] & Mainak Bhattacharjee[2]

I. Introduction

Sustainable development is one of the most important issues of development dynamics in today's world.

The Sustainable Development Goals (SDG) of the UN, in its 7th Goal, has emphasized affordable and cleaner energy. It has indicated that energy is the dominant contributor to climate change, accounting for around 60 per cent of global greenhouse gas emissions. The objective of gradual transition of fossil-fuel operated motor vehicles to battery-operated electronic motor vehicles (where the energy is produced mainly from the alternative and renewable sources of energy) can be set in this backdrop. Thus, as any technological transformation helps any country to a gradual shift from the traditional fossil-fuel operated motor vehicles to the energy-saving modern electronic vehicles (EVs), such an e-mobility can definitely generate a positive externality in production and help the country in achieving the SDG. However, in this transition process, a less developed or developing country can face some infrastructural and resource constraints which can lead to an increase in user charges to such an extent that the benefit might be concentrated within few people, at least during the short run. This shows the challenge before the new technology in relation to e-mobility in the automobile sector. In this paper, our objective is to build a model that captures this challenge and also help the planners to identify the factors which are to be taken into account to overcome the future constraints in this transition process.

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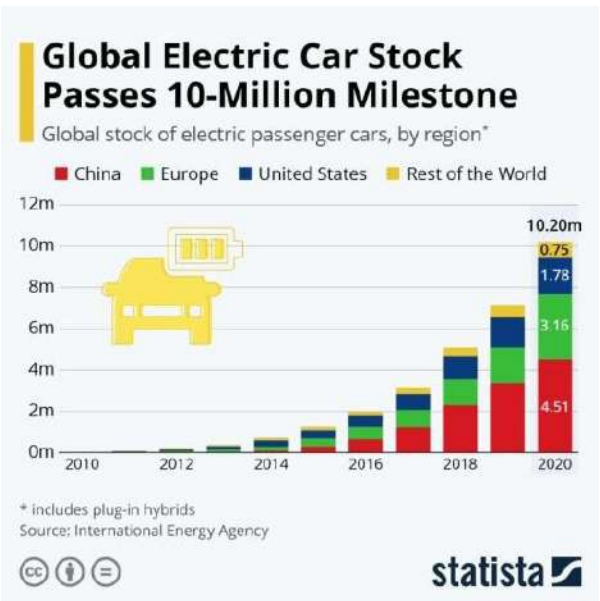
II. World scenario

Despite 2020 being a sluggish year for the global automobile industry, electric car sales continued to grow. According to the latest edition of the International Energy Agency's Global EV (Electronic Vehicle) Outlook, electric passenger car sales climbed despite the total automobile industry contracted by about 16 per cent. While Europe overtook China to become the world's largest EV market for the first time in 2020, China still had the largest number of electric cars on its roads with a total stock of 4.5 million in 2019.

As evident from Fig.-1, the past decade has been one of rapid growth for electric cars, even though we are still at the beginning of the transition to cleaner and more sustainable mobility (viz. an e-mobility). Despite the fact that the number of electric passenger cars in use increased globally from close to zero in 2010 to about 10.2 million in 2020, electric cars and plug-in hybrids (which use both fossil fuel as well as rechargeable batteries)accounted for only 4.6 per cent of the global passenger car sales in 2019.

Fig.-1 Growth Trend in Global Stock of EV (Passenger cars) during 210-2020 (includes plug-in hybrids)



Source: International Energy Agency (2020)

A record three million electric cars were registered globally in 2020, 41 per cent higher than in 2019. That trend has continued in2021 also with 2.5 times as many registrations recorded as during the same period last year.

The growth (as shown in Fig.-1) is being driven by strong sales in Europe and China with 450,000 and 500,000 EVs sold, respectively. The United States has also experienced a doubling of its sales during January-March, 2021 compared to the first quarter of 2020. In 2020, customers throughout the globe spent $120 billion on electric car purchases and governments supporting them with $14 billion in subsidies, a 25 per cent increase in 2019. This was driven by strong incentives in Europe that have seen the continent as the world's largest EV market for the first time as opposed to that of China so far.

III. Scenario in India

By pushing electric mobility under the Faster Adoption and Manufacturing of (Hybrid and) Electric Vehicles Phase-II or FAME-II scheme and setting an ambitious target of generating 175 gigawatts of power from renewable energy by 2022, India has made clear its intent to reduce greenhouse gas emissions. It is to be noted that transport accounts for about 11 per cent of India's carbon emissions. The government's target is to ensure that at least 15% of the vehicles in the country would be electric vehicles by 2030 and this is aimed at reducing vehicular pollution and dependence on crude oil imports. According to an estimate given by the Council of Energy, Environment and Water (Delhi), apart from environmental gains, this transition or e-mobility is likely to save crude oil imports worth Rs 1,07,566 crore for India,

The rapid adoption of EVs, however, will also mean an increase in the consumption of lithium-ion batteries, viz., rechargeable batteries used in a number of industries (including automotive and consumer electronics) and the subsequent rise in the number of spent batteries that would require environmentally sound end-of-life handling. These

batteries are chiefly made up of lithium, cobalt, nickel, iron, copper and aluminium. The life of an EV battery ranges between six and eight years and needs replacement when its capacity starts falling below 80 per cent. Batteries are stacked together in cells and modules to make a battery pack. Once these batteries begin losing their capacity, they can be managed in two ways: either they can be repurposed for secondary applications or they can be sent for recycling directly and metals can be recovered from them using a particular technology.

According to the information provided by the Society of Manufacturers of Electric Vehicles in India, currently, there are nearly 2.5 lacs EVs on the road that uses lithium-ion batteries in India. Among them, two-wheelers account for 80 per cent or about 2 lac vehicles, three-wheelers comprise nearly 25,000-30,000 and the rest are four-wheelers.

Table-1 Probable EV Penetration in India

Segment	Sub-Segment	EV Penetration (%)	
		2025	2030
2-wheeler	Scooters	15-25%	50-70%
	Motorcycles	1-2%	10-20%
	Overall	7-10%	25-35%
3-wheeler	Overall	35-45%	65-75%
4-wheeler (light)	Personal	1-3%	10-15%
	Commercial	5-10%	20-30%
Bus	State Transport Undertakings	15-25%	25-40%

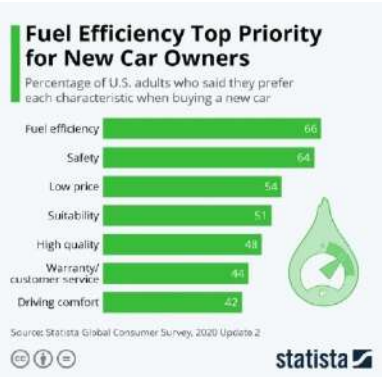
Source: Economic Times, NOV 4, 2020

According to a report titled 'Shifting Gears' prepared by KPMG and CII in 2019, the light mobility segments of 2/3-wheelers and commercial cars will be leading EV penetration in India by 2030. The reach of electric cars in the personal mobility segment will be only

10%-15%. However, electric cars for ride-sharing and taxis may see traction of 20%-30%.By the end of this decade, the three-wheeler adoption is expected to be around 65%-70%. Electric two-wheelers, with a plethora of startups offering different ranges of products at an attractive price and ownership models, are expected to have only 25%-35% penetration. The probable penetration of EVs in different segments of the automobile industry has been shown in Table-1.

Their prices and fuel economy make them commercially more viable. In a recent (2020) global survey made by Statista (USA), it has been observed that fuel efficiency has been the top priority for the new car owners (Fig.-2). Fig.-2 reveals that 66 per cent of the new car owners emphasize on fuel efficiency aspect of the new car. From this viewpoint, there remains a favourable market for EVs. However, this pattern seems to be more true for the European market compared to that of India. At present, we observe an oligopolistic market structure in the automobile sector with the existence of few car manufacturers dominating the entire market. In the EV segment (4 wheelers) also the manufacturers such as Tata Motors (EV segment: Tata Tigor, Tata Nexon), Mahindra & Mahindra (EV segment: E Verito & E20 Plus), Maruti Suzuki (EV segment: Wagon R EV), MG Motors (EV segment: MG ZS), Hyundai (EV segment: Kona electric), etc. have created an oligopoly market structure. More interestingly, the product price in this EV segment ranges between Rs. 8 lacs to 16 lacs for the EV varieties produced by Tata Motors, Mahindra & Mahindra and Maruti Suzuki, i.e. these are affordable for the consumers who presently purchase petrol/ diesel versions. However, this price soars up to Rs 1 crore and more for EVs produced by Jaguar or Mercedes Benz. In the 2/3 wheelers segment also, the companies like Hero Motors, Revolt Motors, Mayuri (e-rickshaw), Ather energy, Retrosa (Avera scooter) etc. are producing EVs. Despite such positive elements in the business environment, such an e-mobility faces some crucial challenges at the present moment in India.

Fig.-2 Preference pattern of the New Car Owners



Source: Statista Global Consumer Survey, 2020

IV. Constraints in the process of e-mobility

India's phased manufacturing plans of EVs in several segments of the automobile industry are likely to face some challenges. These challenges or constraints include (i) the absence of adequate reserves of key raw materials like lithium and cobalt, (ii) inadequate expansion of industries that manufacture lithium-ion batteries, (iii) inadequate charging infrastructure (viz. the charging points spread throughout the country) for facilitating the owners of EVs, (iv) inadequacy of power supply based on the non-renewable sources of energy, and (v) the absence of a well structured local supply chain.
Owing to the paucity of mineral resources used in making lithium-ion batteries, India mostly imports lithium-ion cells and batteries, though some companies are assembling batteries from imported cells.

The supremacy of China in this field can be easily shown by its comparative advantage in the production of some of the primary inputs required for the production of EVs. According to the statistical information provided by Benchmark Mineral Intelligence (a London-based research firm for the lithium-ion battery industry), Chinese chemical companies accounted for about 80 per cent of the world's total output of raw materials (viz. lithium) for advanced batteries in

2019, and out of the proposed 136 lithium-ion battery plants to be established in the world within 2029, 101 are based in China. Further, In addition to rare earth, the manufacturing of lithium-ion batteries depends also on some key materials like graphite (the material used in pencil tips), and it is observed that China produced more than 60 per cent of the world's graphite in 2019. So far as cobalt is concerned, another very useful and important ingredient for the production of EVs, the Democratic Republic of the Congo (DRC) produces more than 60% of the world's mined cobalt. However, a recent working paper published by the OECD shows that 8 out of the 14 largest cobalt mines in the DRC are Chinese-owned and account for almost half of the cobalt output of DRC.

In the case of the 2/3 wheelers segment, the unorganized and small players are dominating in India due to the limited scale of business. In order to combat this, the NITI Aayog is laying a key role in setting up EV chargers. In 2020, there were about 270 units of installed EV chargers in India. NITI Aayog has partnered with NTPC to set up 100,000 EV charging stations across India. Other government entities like BHEL have partnered with ISRO to develop batteries using Lithium technologies.

As we have already stated, most of our lithium requirements are currently imported from China, South Korea, Vietnam, Singapore, and Japan. Several players who have shown interest in the Lithium battery production business in India include Reliance, Suzuki, Toshiba, Denso Corp, JSW Group, Adani, Mahindra, Hero Electric, Panasonic, Exide Batteries, etc. This is a good sign. However, most of the experts in the Indian automobile industry are of the view that the sluggish trend in the Indian automobile market since March-April 2020 can be a significant obstacle towards the process of e-mobility in this industry. In addition, the steps taken to enable the acceptance of EVs will not suit their main purpose if alternative means of electricity production are not implemented. Currently, up to 60% of the electricity is produced from coal. Although the government has set major aims to bolster the growth of EVs a lot more has to be done to ensure they are implemented.

At the end of March 2018, thermal power plants accounted for an overwhelming 69.25 per cent of the total installed capacity in the country, with an installed capacity of 2,76,293 MW. However, if we won't move ahead towards achieving the goal of sustainable development then non-renewable energy sources are to be tapped more efficiently. The total installed capacity of grid-interactive renewable power, as per the government report, was about 57,244 MW in March 2017, and this had gone up to about 73,352 MW in October 2018 indicating a growth of 28% during the period. Out of the total installed generation capacity of renewable power in October 2018, wind power accounted for about 47.7%, followed by solar power including rooftops (33.1%) and biomass power (13.0%). Karnataka had the highest installed capacity of grid-connected renewable power (12,933 MW) followed by Tamil Nadu (11899 MW) and Maharashtra (8780 MW), mainly on account of wind and solar power. More such efforts are to be taken on the part of the government to expand and utilize this potentiality. Otherwise, the objective of e-mobility in the automobile sector cannot be materialized properly.

V. A Theoretical Model

To address the current dispensation, a general equilibrium model has been conceived herein. The model mimics a small open economy with three sectors, namely, the traditional automobile manufacturing sector (X), a modern automobile sector producing vehicles powered by electricity(Y) and another sector producing non-automobile manufacturing (Z). All three sectors use a fixed coefficient production technology as what is represented by a Leontief type production function. Now, the inputs which are being used in these sectors can be classified as skilled labour (L_s) used in X and Y, a specific capital (K_1) in Y and capital (K) in X and Z. In the ranking, skill-intensive sector Y comes first followed by X and Z. On the other hand, sector X is relatively K-intensive compared to sector Z All the sectors are assumed to have a competitive industrial structure such that each firm in each sector earns a normal profit. Each sector is open to foreign trade with sector Y being import-competing in nature, while

X and Z are exporting in nature. Further, it has been supposed that sector Y and sector X are relatively dependent on clean energy while the Z is relatively dependent on dirty energy. Moreover, the factors are fully employed. As against this backdrop, we have the following structural equations:

$$P_X = a_{SX}W_S + a_{KX}r \dots\dots\dots\dots\dots (1)$$

$$P_Y = a_{SY}W_S + a_{KY}r_1 \dots\dots\dots\dots\dots\dots (2)$$

$$P_Z = a_{SZ}W_S + a_{KZ}r \dots\dots\dots\dots\dots\dots (3)$$

Where $a_{ij}\, a_{ij}$ denotes the per the unit requirement of input 'i' in sector 'j'.

$L_s(1-\alpha) = a_{SX}X + a_{SY}Y + a_{SZ}Z\, L_s(1-\alpha) = a_{SX}X + a_{SY}Y + a_{SZ}Z \dots\dots\dots\dots\dots$ (4)

[where Ls is fixed supply of skilled labour and 'α' is the depreciation rate of their productivity due to vehicular emission (E), i.e. α= α(E), where $\alpha' > 0$].

$$K_1 = a_{KY}Y \dots\dots\dots\dots\dots (5)$$

$$K = a_{KX}X + a_{KZ}Z \dots\dots\dots (6)$$

[Note: all factor supplies are exogenously given]

Now in this model, the endogenous variables are factor prices, namely, $W_S W_S, r_1 r_1, r\, r$ and final output of the three sectors, X, Y and Z. Similarly, there are six equations to solve these six endogenous variables.

Impact of increase in emission on the economy:

Herein we shall examine the exogenous increase in emission on the outputs of the sectors. To this end, we shall have a comparative static exercise on the output-subsystem[as indicated in equations (4) to (6)] to have the following developments.

$$L_S \alpha_0 \varepsilon_\alpha^E \hat{E} = \beta_{SX}\hat{X} + \beta_{SY}\hat{Y} + \beta_{SZ}\hat{Z} \dots\dots\dots (7)$$

$$0 = \beta_{K1,Y}\hat{Y} \ldots\ldots\ldots (8)$$

$$0 = \beta_{KX}\hat{X} + \beta_{KZ}\hat{Z} \ldots\ldots\ldots (9)$$

[Note:$\varepsilon_{\alpha}^{E}\varepsilon_{\alpha}^{E}$ stands for the emission elasticity of rate of depreciation of skilled labour]
Solving the aforementioned equations, we get:

$$\hat{X} = \left[\frac{L_S\alpha_0(\varepsilon_{\alpha}^{E})\beta_{KZ}}{\beta_{SX}\beta_{KZ} + \beta_{SZ}\beta_{KX}}\right]\hat{E} \ldots\ldots\ldots (10)$$

$$\hat{Y} = 0 \ldots\ldots\ldots (11)$$

$$\hat{Z} = \frac{\beta_{KX}}{\beta_{KZ}}\left[\frac{L_S\alpha_0(\varepsilon_{\alpha}^{E})\beta_{KZ}}{\beta_{SX}\beta_{KZ} + \beta_{SZ}\beta_{KX}}\right]\hat{E} \ldots\ldots\ldots (12)$$

Therefore, for $\hat{E} > 0\ \hat{E} > 0$, we get $\hat{X}, \hat{Z} < 0\hat{X}, \hat{Z} < 0$ since, $\varepsilon_{\alpha}^{E} < 0\varepsilon_{\alpha}^{E} < 0$.
Thus we have the following proposition.

Proposition1: Increase in emission results in the contraction of output of the exporting sectors, led by the contraction of productivity and therefore may have adverse macroeconomic implications and at the same time can potentially call for a switch to electric vehicles.

Impact of change in policy-induced vehicular life span for operation:

This pertains to the measure taken by the government to reduce the operating span of Tovehicles powered by non-renewable and polluting fuel, like petrol and diesel. This would require replacing the traditional automobiles more frequently than before and thereby will help boost the production of the traditional vehicle through demand boost. Now, let this operational span be denoted by θ and so much so

that X is increasing in θ. The reason being that the increased demand for the traditional vehicle due to more frequent replacement will cause an increase in its price and, hence, trigger a rise in its supply depending upon the degree of elasticity. Moreover, the increase in supply may be associated with the increased import of auto-parts and that, particularly in absence of indigenous unavailability may produce adverse effect on the external sector in terms of increased trade deficit. However, such adverse effect can be countered depending on the export augmenting the capacity of X. Herein we shall take resort comparative static exercise on the output sub-system of the overall model to determine the consequence of such policy. The result is as follows.

$$\hat{X} = \left(\frac{1}{\theta_0}\right)(\varepsilon_X^{\theta})\hat{\theta} > 0 \ldots\ldots\ldots\ldots\ldots (13)$$

$$\hat{Z} = -\left(\frac{\beta_{SX}}{\beta_{SZ}}\right)\left(\frac{1}{\theta_0}\right)(\varepsilon_X^{\theta})\hat{\theta} < 0 \ldots\ldots\ldots\ldots\ldots (14)$$

Proposition 2: Expansion of the automobile sector due to altered replacement norms enforced by the government comes at the cost of contraction of non-automobile manufacturing. This fallout can be overcome through an increase in the supply of skilled labour and capital (by attracting FDI).

Impact of FDI in manufacturing of electric vehicle:

Herein, we shall examine the consequence of foreign capital inflow towards the manufacturing of electric vehicles using comparative statics. This implies an increase in K_1 and the result of which is as follows.

$$\hat{Y} = \frac{\widehat{K_1}}{\beta_{K1,Y}} > 0 \ldots\ldots\ldots\ldots\ldots\ldots (15)$$

$$\hat{X} = \frac{\left(-\frac{\beta_{SY}}{\beta_{KX}}\right)\left(\frac{\widehat{K_1}}{\beta_{K1,Y}}\right)}{\left(\frac{\beta_{SX}}{\beta_{KX}} - \frac{\beta_{SZ}}{\beta_{KZ}}\right)} > 0[Since\ X\ is\ K - intensive\ relatively\ to\ Z] \ldots\ldots\ldots\ldots\ldots (16)$$

$$\hat{Z} = \left(\frac{-\beta_{KX}}{\beta_{KZ}}\right)\hat{X} < 0 \ldots\ldots\ldots\ldots\ldots (17)$$

Proposotion3: FDI inflow into the modern automobile sector proves to be propitious for the expansion of traditional one due to the operation of the factors like technological spill-over, leading to the enhancement of factor productivity by and by and subsequently, an improvement in fuel efficiency quality. However, such development goes against the merit of non-automobile manufacturing, which however can be averted through comprehensive FDI policy boosting foreign capital inflow into Z (i.e., increase in K as well).

VI. Conclusion

Thus, efforts at ushering in technological transition in an automobile through the introduction of electricity-powered vehicles have their pros and cons. On the one hand, it helps in lowering carbon emission and thereby prevents the erosion of quality human capital along with enabling technological spill-over into the traditional automobile sector. On the other hand, it may fail to auger well for the non-automobile manufacturing due to the dearth of capital and labour resources for which a comprehensive development policy stressing the human-capital formation and foreign capital inflow with the transfer of state-of-art technology is warranted.

References:

1. Zero-Emission Vehicles: Towards a Policy Framework (2018), NITI Aayog, Delhi
2. SIAM (Society of Indian Automobile Manufacturers): 'White Paper on Electric Vehicles', December 2017
3. Energy Statistics (2019): CSO, MoSPI, Govt. of India.
4. Statista (USA): website: https://www.statista.com/chart/17178/global-electric-car-ownership
5. Felix Ritcher (2021): 'Global Electric Car Stock Passes 10-Million Milestone', May 4, Statista, USA, website
6. Niall McCarthy (20121): 'Electric Vehicle Market To Hit Ludicrous Mode', April 29, Statista, USA, website

Creativity is seeing the same thing but thinking differently

- APJ Abdul Kalam

Edible Oil Prices Hike in India: A Global Shock

- Puja Putatunda*

The second wave of Covid-19 and its consequent death toll has engulfed almost all the daily newspapers' columns. However, very few other news has still managed to occupy some places among which the steady rise in retail prices of edible oil is one.

The average retail prices of edible oils hit record highs in May'2021 with soyabean oil prices climbing to nearly Rs 150 for a kilo and sunflower oil to Rs 170. The prices of both edible oils have jumped around 50% from the levels prevailing when the country was under a national lockdown. Retail prices of other edible oils too jumped. Mustard oil was up 40% to Rs 165 a kilo, groundnut oil climbed 20% to Rs 175 and palm oil by 50% to more than Rs 130 a kilo. Even the prices of vanaspati soared 44% to Rs 130 a kilo. A similar increase was also seen in the prices of rice bran oil. As per the government data, the retail prices of edible oils have risen over 62 per cent in the last one year. The bar diagram shown below makes a comparison between prices of different edible oils in May'2020 and the corresponding figures in May'2021 which confirm these sharp rises in prices of all types of edible oils.

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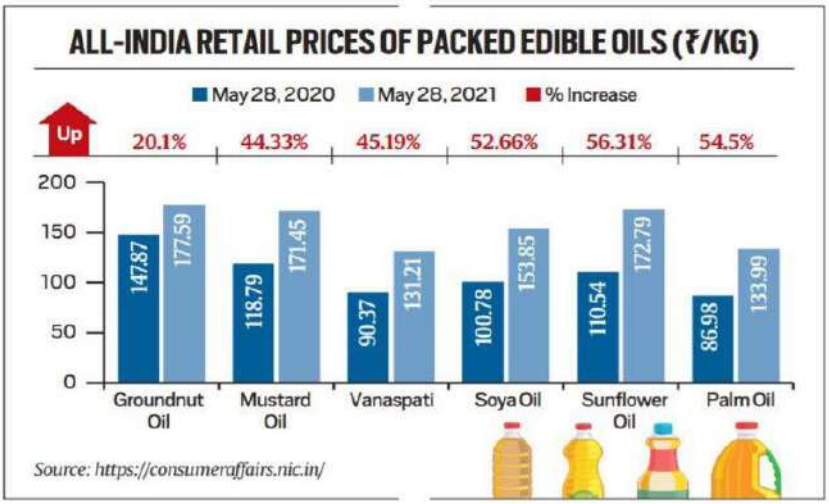

Such a steady rise in the prices of edible oil has affected the consumers heavily throughout the country amidst the heavy shock of the second wave of COVID-19 on the income of the households. In this article, I have tried to focus on some possible reasons behind such a sharp rise in oil prices and the remedial measures to curb down this problem,

In 2019-20, domestic availability of edible oils from both primary sources (oilseeds like mustard, groundnut etc.) and secondary sources (such as coconut, oil palm, rice bran oil, cottonseed) was only 10.65 million tonnes against the total domestic demand of 24 million tonnes – a gap of over 13 million tonnes. So, India has to rely on imports to fill up this gap.

However, this is nothing new. India has been importing on average 15 million tonnes per year in the last 5 years. The total acreage under oilseeds had increased by 18 lakh hectares or 10% during the 2020 Kharif season, aided by the increased availability of labour after migrant workers returned to their home in rural areas. The acreage for groundnut rose 30% increase, and for soybean by about 7%. Similarly, the acreage under oilseeds in the 2020-21 Rabi season

was up almost 4%. Mustard is the primary oilseed grown during the winter cropping season and the area under the crop was up almost 5%. Consequently, according to the third advance estimates of production for the 2020-21 agriculture season, output expanded by 10% to 365.65 lakh tonnes, with the soybean crop rising almost 20% and mustard by a little under 10%. Further, demand was muted through most of the year, as eating out was not an option during the lockdown and restaurants were order to shut. Even after the lockdown was eased, most of the people avoided dining in restaurants. So, domestic demand is unlikely to have exerted any additional upward pressure on prices. Therefore, the sharp rise in prices of the edible oil cannot be explained in terms of the gap between domestic demand and supply. However, as India is the largest importer of edible oils meeting up almost 60 per cent of domestic demand, any increase in global prices of the oilseeds and edible oil is bound to be transmitted into domestic prices. This was what happened in recent time. Sunflower oil prices rise almost 125% in the last one year. Moreover, global prices continued to rise sharply due to a substantial fall in output. Drought-like conditions during last summer in the Black Sea region countries such as Ukraine and Russia are responsible for such drastic fall in production. Ukraine is the largest producer of sunflower seeds and Russia, the second-largest, while India and China are the largest consumers of sunflower oil. Reduction in acreage in Argentina also reduced the total availability of the oilseed during the year.

Now, how to tackle this sharp rise in the price of edible oil and oilseeds is the question. The immediate solution is to cut down on import tariff. However, this is merely a short-term solution having some adverse side effect. Moreover, cutting of import duty may only help overseas suppliers and demotivate farmers from expanding oilseed acreage. Rather, the government may remove 5 per cent GST on mustard seed and mustard oil. Agricultural cess may also be removed from edible oils. The head of the Solvent Extractors' Association of India (SEA) suggested that the government help poor people without cutting import tax by providing subsidised edible oils. However, all these measures are

short-term solutions providing temporary relief. The main problem is rooted in the huge deficit in domestic production as compared to domestic consumption in oilseeds and edible oil. This gap compels India to import a significant amount of edible oil from the global market. Consequently, this sector is highly sensitive to global shocks. So, in the long run, the government has to take measures for a substantial increase in domestic production of edible oils to make the country self-sufficient in edible oil production. The Central Government has already undertaken a plan under 'National Mission on Oilseeds' emphasizing on productivity to make India self reliant (Atmanirbhar) in the production of edible oils within the next 5 years. However, this is a long-term process. The government needs to maintain a balance between short-term measures of controlling price hike and long-term measures of keeping India self-sufficient in edible oil production.

> We are what our thoughts have made us; so take care about what you think. Words are secondary. Thoughts live; they travel far.
>
> - Swami Vivekananda

The World Bank Environmental and Social Framework: Critical Analysis and Cases from India

- Rahul Das*

ABSTRACT: The paper discusses the World Bank Environment and Social Framework introduced in 2018, and provide recent examples of its functioning in India. The objective is to briefly explain the history, workings, and current status of the framework and find evidence for critical evaluation in the structural dimension. The results from the literature indicate several shortcomings in the judicial and structural domain of the framework, based on Human rights violations, Gender Issues, and other imperfections. However, several programs under the framework are currently active and have provided quality financial support in the infrastructural and developmental space in India.

***Keywords*:** Environment and Social framework, Development, Environment policy, social assessment

INTRODUCTION

The most concerning issues of the current century are relating to Climate Change and Social Inequality in several underdeveloped and developing countries. As the population is expected to expand for the next few decades, mitigating climate change is expected to be one of the biggest challenges of humanity. Low-income economies face a more intensified constraint in this process, due to rising incidences

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of poverty and disparity in terms of civil rights, freedom of speech, and use of social services by all communities of people. Several international organizations (IO) such as the World Bank, United Nations, International Monetary Fund, etc. have collaborated immensely to reduce such problems. However, several studies have pointed out the disruption created by certain project proceedings of IOs as a result of human rights violations.

The World Bank Environmental and Social Framework (ESF) works towards ensuring environmental and social inclusion to all groups of people, based in any community, to be protected under their Investment Project Financing (IPF). The ESF was active as of October 2018 and applicable to all member nations. The World Bank ESF aims to achieve a sustainable development trajectory using policy instruments, a structured financing mechanism, and a properly administered monitoring technique to ensure reduced poverty and prosperity in the long run.

History

Since its establishment, the World Bank has always operated as (and only) a 'lender for infrastructural projects', due to the lack of any normative role assigned to it. The Bank used to provide funds to borrower nations, which then initiated the programs based on their laws and standards. This practice was, however, changed after the introduction of the 'Safeguard Policies' in the 1980s [1]. The entire structure of these policies was to diffuse investments of borrowing nations and advise them to be sensitive towards the spill-over effects they may create on certain communities. The ESF replaced these 'Safeguard Policies', which were used as protection from the Bank's harmful impacts of projects financed through investment. These sets of policies attempted to "safeguard" people from some of these impacts and created a trend of transformation in the Bank's ideas of IPF.

The new ESF, whose reform framework was presented in 2016, was

highly acknowledged by several countries like the US, as well as emerging powers such as China and India [1]. Several developing nations have shown immense support for several controversial policy issues focused on by the ESF, ranging from climate change, labour protection, sustainable livelihood, indigenous population, etc. The ESF is an improved version of the 'Safeguard Policies', which now has active participation from civil society organizations (CSOs) from all around the world.

Workings

The ESF works on the primary vision, based on the Bank's aspiration to achieve 'environmental and social sustainability'. The ESF includes a simplified policy structure known as the 'Environmental and Social Policy for Investment Project Financing', and a set of working principles known as the 'Environmental and Social Standards (ESS)'. Each borrowing nations must abide by the norms set under the policy structure and carry out assessment and identification of impact areas as a result of projects supported under the IPF. The ESS form a plan of action for the work that must be executed to achieve the goals of the framework.

The broad nomenclature of the ESS have been provided (Image 1).

The World Bank is the parent organization of two lender banks that provide the major finances for such development projects; The International Bank for Reconstruction and Development (IBRD) and The International Development Association (IDA). All finances that are provided to borrower nations are on a percentage-share basis, based on their ability and socio-economic status.

Current Status

Any project under the IPF must abide by the ESF structure, and borrowers are required to follow all rules and obligations related to the same. Since the early years of its inception, there have been several

projects that have been initiated at the global and national levels such as river management, landscape management, housing sector programs, etc. and very recently the health system preparedness projects designed to combat the COVID-19 pandemic. Currently, there are around 50 active development projects of the World Bank in India, of which a majority of them are under the IPF. Several grants are issued under IPF and they are divided into sector-specific projects, with proper implementation and monitoring plans to ensure proper accountability and good governance.

CRITICAL ANALYSIS

The Bank's ESF has been highly appreciated by several leaders around the world, however, certain shortcomings must be mentioned concerning the policy structure.

Human Rights Violation

While there remain problems relating to implementation at the grass-root level, the World Bank and several IOs have always been at the forefront while ensuring social and environmental protection and proved significantly their achievements in global development ideas. However, in several instances, they have faced heavy criticism and specifically in one domain: Human Rights. The World Bank has always remained silent about the aspects of human rights when lending regulations are concerned. Though the Bank has agreed to conform with international laws and agreements relating to climate change, marginal or no mention has been made regarding International Human Rights Law [2].

The Coalition for Human Rights in Development (CHRD), in 2016 indicated that several civil society recommendations were not included in the ESF, where labour policy was included but was inconsistent in any mention of international standards for the rights of workers. The Bank's policy only asked borrowing countries to provide basic workers' rights and a proper working environment in IPF by the Bank [3].

Several critics argued the Bank's possibility to dilute the 'safeguard' policies and human rights standards but it failed to do so. Indigenous communities, LGBTI groups have been adversely affected due to human rights violations. For instance, in several incidences, indigenous people are unable to benefit from the increased commercial use of the resource they own and are dependent on for their subsistence. Also, the term "Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities", is highly confusing in the sense that several governments do not acknowledge the term 'indigenous people' and no international agreement mentions any special emphasis to the Sub-Saharan local community [3].

Gender Issues and Standards

The ESF has also not acknowledged the inclusion of several marginalized communities especially women, in the IPF. The Gender Justice Women's Rights, indicate that the first review draft of the ESF has no or a very low-frequent mention of terms relating to gender standards [4].

Using quantitative and qualitative analysis, Zuckerman (2014), indicates the frequency of such terms is found to be very low. The study indicates that in a 110-page consultation draft, the word 'gender' is mentioned 19 times only, with 'women' and 'men' even less, and no reference of terms like 'boy' and 'girl'. Also, there is no mention of aspects relating to 'sexual orientation' in the draft, indicating the probable gender issues. The latest document on the ESF, 2017 has a reduced appearance of just 11 times when the term 'gender' is mentioned.

There are several critical points to believe that the ESF is highly discriminatory in terms of discussion relating to women; the distinctive health and medical problems faced by men and women, the percentage of land held by the world's women population, and their increasing importance in biodiversity and ecosystem protection.

While mentioning the structural deficiency in terms of gender disparity

it must be mentioned that the entire ESF structure is divided into 2 groups; mandatory 'safeguarding policies', and operational policies, neither of which have included any gender monitoring indicators, even after repeated suggestions from civil society groups [4]. The lack of such indicators may result in the increased vulnerability of 'women' and 'girls', as compared to 'men' and 'boys' in environmental risks (say a natural disaster) as indicated by ESS1. The criticism can even extend to the lack of recognition for women, who are usually the first responders to provide safe shelter to abused women and children, first-aid and health care during a natural calamity. The ESS2 mentions labour working conditions but very briefly discusses those women and child are more vulnerable to trafficking. Such discriminations may lead to under-utilization of the women's labour force potential. The only relevance of gender sensitivity is in terms of the 'indigenous people', where certain gender-relevant terms have been mentioned more frequently than in the other ESS.

Thus, gender-based criticisms can be made on every ESS, and several reports indicate that not only in the ESF but even before that, the World Bank has been highly insensitive towards gender issues [5].

Policy Issue in High-Risk Projects

The Bretton Woods Project, 2018 criticized that the agreement of shareholders of the Bank based on General Capital Increase (GCI), led to the bank approving several high-risk projects, and undertaking comparatively riskier funding in "fragile and conflict-affected states" [6]. Several commentaries have been forwarded to the World Bank relating to the effects of high-risk projects, concerning the environmental and social risk assessment. CSOs around the world have shown deep concern for the ESF policies relating to such projects. The policy norm under the ESF indicates a 'risk-based management' system, in which hazards relating to environmental and social status will be addressed only when they appear in the process of implementation and not before that.

There are several incidences when CSO activists have faced personal risks while they engaged in protests relating to high-risk projects. In Indonesia, during a Civil Society event, individuals complained about the presence of military police when there were discussions relating to IPF, which raised fear of retaliation if protests were made [6]. The World Bank Geothermal Project in Indonesia was also highly criticized when CSOs claimed that environmental and social assessments were improperly and inefficiently conducted.

The entire confusion is relating to the accounting structure and decisions on the exact cost (externalities) of a high-risk project based on no prior information due to the lack of proper assessment documents.

Other Structural Deficiencies

Other than the major issues mentioned previously there are a few structural, financial, and policy loopholes present in the ESF as indicated by various sources.

Civil Society Recommendations: More than 60 CSOs had recommended suggestions during the initial draft reviews, relating to the issues of gender discrimination which remained ignorantly unacknowledged by the Bank [4]. Civil Society groups around the world play an important role in critically analyzing and suggesting policy improvements due to their stakeholder engagements. Several reports have questioned the accountability aspect of the Bank and the ESF due to their reduced engagement with CSOs.

GCI Repercussions: The World Bank's capital increase in early 2018, was expected to increase its lending by a huge extent and reduce inequality on the environmental and social front. However, the convergence of this capital increase with the ESF has created several accountability issues [7].

ESS Thresholds: Several studies suggest that the thresholds required for project approvals are based on only a few specific project-based

ESS, rather than all the standards. These thresholds determine the capability of the borrower to use the finances efficiently related to a project. For example, dam construction or a landscape management project is not only required to comply with ESS1 but indirectly with all the other standards. Thus, a project must be approved when it fulfils norms relating to all the standards under ESS.

Land Resettlement: Land Displacement and Resettlement has also created several issues that create negative externalities during certain projects. CSOs have advised the Bank to avoid displacement of communities whenever possible and ensure livelihood restoration for communities impacted through the downstream effect of dams and land-based management projects. However, ESS1 does not mention any such proposition, rather lacks the possibility of including an income and livelihood restoration scheme in ESS5.

Carbon Reduction: The Bank's ESF revised drafts were available to the public after the initial drafts (in 2015) of the United Nations Framework Convention on Climate Change (UNFCCC) Paris Agreements and must have included aspects of carbon threshold based on the recommendations of the Agreement. However, the final draft, 2018 neither mentions the Agreement nor indicates norms for reporting of a threshold above 25,000 metric tons of GHG emission (CO_2 equivalent) every year at the facility level as recommended by the Agreement. Such norms relating to climate change must be stern especially for developing economies such as India, which have a major contribution to world carbon emission.

CURRENT SITUATION IN INDIA

In the last few decades of growth and prosperity, India has emerged as a global power. While the country has achieved high economic growth, there remain constraints relating to the environment and social sustainability in the country, especially with the low-income groups. The population has been rising at a steady rate, with rising unemployment, incidences of poverty, and adverse climatic

conditions. The World Bank and several IOs have shared their ideas to reduce the increasing disparity in the country. The ESF and IPF have been serving to ensure equitable and sustainable livelihood standards for the last few years for a considerable population.

Meghalaya Community-Led Landscape Management Project (MCLLMP)

The state of Meghalaya has around 70 per cent of its landscape under mountains and forest, out of which 40 per cent has been degraded due to adverse environmental practices. Landscape management projects are highly important in such regions with such conditions and a high population density. This project aims to strengthen the rural communities and their structural use of certain land areas in the Meghalaya state so that they can maintain proper natural resource management (NRM). The entire project was funded on an 80-20 percentage share (Total Fund; US$ = 60 million), where 80 percent of the funding was from the IBRD and 20 percent from the recipient, i.e., Meghalaya Basin Development Authority, Govt. of Meghalaya [8].

The project was successfully approved in May 2018 and has a duration of 5 years. The project works in conformity to the ESF standards and focuses on the Forestry and Public Administration sectors, ensuring that the theme of Environment and NRM is sustained.

As of August 2020, US$ 4.24 million has been disbursed for the program and the program has received a Project Development Objective (PDO) rating of 'Satisfactory' as of 15 June 2020 [8].

The Components of the Project have been mentioned (Image 2).

The latest Implementation Support Report on 25 November 2019 indicated that the ESF has been integrated with the CNRM Plan, and district teams have been created for the provision of proper social and environmental guidelines during the implementation of CNRM [9].

Integrated Project for Source Sustainability and Climate Resilient Rain-fed Agriculture in Himachal Pradesh

This is a very recent project undertaken by the World Bank in the state of Himachal Pradesh (HP), which was approved in February 2020. The objective of the project is to ensure improved upstream watershed management for better productivity using agricultural water [10].

The project has been divided into components and sub-components which focus largely on sustainable land and water management (SLWM) training, targeted-intervention in specific Gram-Panchayats, climate-smart technological innovations, and improving the Himachal Pradesh Forest Department. The entire project has approved funding of US$ 100 million, of which 80 million will be provided by IBRD and the rest by the Govt. of HP. The project has a sector-specific intervention in Forestry, Livestock, Irrigation and Drainage, Agriculture, and Public Administration [10].

The program's procurement plan documents indicate very clearly the mention of ESF standards that must be met during the implementation of the program.

Recent reports indicate that the program is expected to benefit more than 4 lakh farming households in the state, under 428 selected Gram Panchayats of 10 districts [11]. Such investments usually help farmers who depend primarily on irrigational projects and are environmentally and socially sustainable in the long run.

India COVID-19 Emergency Response and Health Systems Preparedness Project

The project is co-financed, where the Asian Infrastructure Investment Bank (AIIB) has collaborated with the World Bank to combat the recent pandemic and strengthen the national health system in the country. The project was approved in April 2020 with a fund approval of US$ 1000 million; however, the World Bank does not indicate any disbursements that have been made [12] to date.

The project was introduced to work in line with the COVID-19 Containment Plan introduced by the MoHFWand has received acknowledgment from the World Health Organization (WHO).

The project is divided into 6 components and all investments under them must be consistent with the World Bank's ESF, in terms of transport, handling, and disposal of any infectious waste material. The MoHFW has also agreed to follow all advisories of the WHO and created an Environment and Social Commitment Plan (ESCP) and Stakeholder Engagement Plan (SEP), based on the project [13].

The ESCP for this projectindicated that the program must be implemented following all ESS, and be time-bound at every procedural action taken.

The Components of the Project have been mentioned (Image 3).

Accountability: The MoHFW, National Center for Disease Control (NCDC) and the Indian Council of Medical Research (ICMR) are responsible for the implementation of the program however, the Govt. of India must be responsible for any violation of the ESF norms. One of the major components of the entire ESCP is Regular reporting (Quarterly) of ESF, and performance based on environmental, social, health, and safety (ESHS) standards [14].

Organizational structure and Instruments: The MoHFW must create a Program Management Unit (PMU) at different levels to access the risks and impacts of the project implementation particularly for severely vulnerable and disadvantaged groups. The Biomedical Waste Management Plan under the ESCP must also undertake infrastructural constructions to increase capacity and mitigate any adverse effects as a result of waste disposal. The labour management norms under ESS2 will also apply to health care workers serving under the IPF.

The ESCP is a very detailed report indicating the units and organizational structure under each ESS and the responsible entities

and timeframe for progress submissions.

Other than the exemplary programs mentioned above there are several IPF programs that are currently active in India, ranging from road development to municipal operations. Some of the other recent examples can be of the Tamil Nadu Housing Sector Strengthening Program, and the West Bengal Irrigation and Flood Management Project. All such projects have provided great infrastructural and developmental support to the nation.

CONCLUSION

The 'Safeguard Policies' of the World Bank ESF had received immense competition from several IOs, who showcased an improved structure of the environment and social assessment as compared to the World Bank. This led to stiff competition between Multilateral Development Banks (MDBs) and their financing instruments. The new ESF, 2018 was a remarkable improvement in this regard. Despite criticism, certain norms and regulations have been established which were not present in investment mechanisms earlier.

Several improvements can be made with the ESF structure relating to Human Rights, Gender Issues, and Structural Issues. The issue of structural deficienciesrelating to project approvals in Environmental Impact Assessments (EIAs) was addressed following the recommendations of Oxfam in March 2015, however, there remain issues relating to Human Rights violations. The ESF could be made more robust if an ESS indicating gender sensitivity and mandatory gender standards is included or integrated with the existing ESS. Also, the ESF should be expanded to other lending instruments such as Development Policy Financing, and not limited to the IPF only.

Bibliography

[1]	P. Dann and M. Riegner, "The World Bank's Environmental and Social Safeguards and the evolution of global order," *Leiden Journal of International Law,* vol. 32, pp. 537-559, 2019.
[2]	CHRD, "The World Bank Safeguards Review: A Critical Human Rights Issue," *Coalition for Human Rights in Development,* 2017.
[3]	CHRD, " Coalition for Human Rights in Development," 8 August 2016. [Online]. Available: https://rightsindevelopment.org/release-world-bank-leaves-holes-in-safety-net/. [Accessed 19 September 2020].
[4]	E. Zuckerman, "Gender Review and Recommendations on the: World Bank Environmental and Social Framework," *Gender Justice Women's Rights,* 2014.
[5]	C. Lauterbach and E. Zuckerman, "Assessing the effectiveness of World Bank investments - The gender dimension," *UNU - WIDER Working Paper No. 2013/017,* 2013.
[6]	Bretton Woods Project, "Civil society apprehensive as World Bank launches new Environmental and Social Framework," 2018.
[7]	K. Horta, "Reform gone wrong," 12 October 2018. [Online]. Available: https://www.dandc.eu/en/article/world-banks-social-and-environmental-standards-have-been-weakened-significantly. [Accessed 20 September 2020].
[8]	The World Bank, "Meghalaya Community-led Landscapes Management Project," 13 March 2018. [Online]. Available: https://projects.worldbank.org/en/projects-operations/project-detail/P157836. [Accessed 20 September 2020].
[9]	Meghalaya Basin Development Authority, "Third Implementation Support Mission: November 25, 2019," Govt. of Meghalaya, 2019.
[10]	The World Bank, "Integrated Project for Source Sustainability and Climate Resilient Rain-fed Agriculture in Himachal Pradesh," February 2020. [Online]. Available: https://projects.worldbank.org/en/projects-operations/project-detail/P165129. [Accessed 20 September 2020].
[11]	reliefweb, "OCHA Services," OCHA Services, 18 February 2020. [Online]. Available: https://reliefweb.int/report/india/new-world-bank-project-benefit-over-400000-farming-households-himachal-pradesh-india#:~:text=The%20Integrated%20Project%20for%20Source,farmers%2C%20women%20and%20pastoral%20communities.. [Accessed 20 September 2020].

[12]	T. W. Bank, "India COVID-19 Emergency Response and Health Systems Preparedness Project," May 2020. [Online]. Available: https://projects.worldbank.org/en/projects-operations/project-detail/P173836. [Accessed 20 September 2020].
[13]	AIIB, "India: COVID-19 Emergency Response and Health Systems Preparedness Project," February 2020. [Online]. Available: https://www.aiib.org/en/projects/details/2020/approved/India-COVID-19-Emergency-Response-and-Health-Systems-Preparedness-Project.html. [Accessed 20 September 2020].
[14]	MoHFW, "ENVIRONMENTAL AND SOCIAL COMMITMENT PLAN (ESCP)," Government of India, The World Bank Group, 2020.
[15]	Oxfam, "Oxfam Comments on Second Draft of World Bank Environmental and Social Framework," 2015.
[16]	C. MARKOWITZ, "INFRASTRUCTURE AND IMPACTS: STRENGTHENING ENVIRONMENTAL AND SOCIAL SAFEGUARDS," *South African Institute of International Affairs,* vol. Policy Insights 54, 2018.
[17]	T. W. Bank, 8 September 2020. [Online]. Available: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/208411599573011543/india-south-asia-p165129-integrated-project-for-source-sustainability-and-climate-resilient-rain-fed-agriculture-in-himachal-pradesh-procurement-plan. [Accessed 20 September 2020].
[18]	The Bretton Woods Project, "World Bank general capital increase to be formalised in October," 27 July 2018. [Online]. Available: https://www.brettonwoodsproject.org/2018/07/world-bank-general-capital-increase-formalised-october/. [Accessed 20 September 2020].

Endnotes

[1] Indigenous people are termed as First Peoples, First Nations, Aboriginal Peoples or Native Peoples or autochthonous people. For example, in Australia for any Human Rights Violation relating to Aboriginal Australians, the Native Title Act is operated.
[2] Roughly 2 percent of world's titled land [4].
[3] Indian example can be of the Chipko Movement, 1973.
[4] July, 2018 Spring Meetings of the World Bank indicate US$ 13 billion increase in capital from IBRD and IFC after shareholder's agreements [18].
[5] Civil Society Policy Forum event on the ESF during the World Bank and IMF Annual Meetings in Bali in October, 2018
[6] Deforestation, Mining and Jhum cultivation
[7] Community NRM
[8] The document can be found at [17]
[9] Ministry of Health and Family Welfare.
[10] Dated March 27, 2020
[11] The Oxfam Comments mention several deficiencies and suggestions with relation to the ESF draft presented in early 2015.

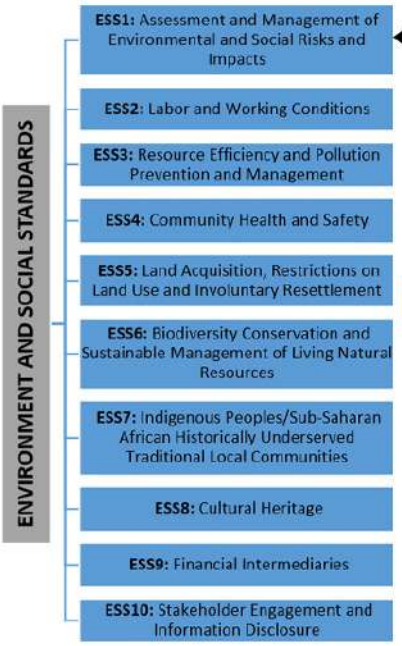
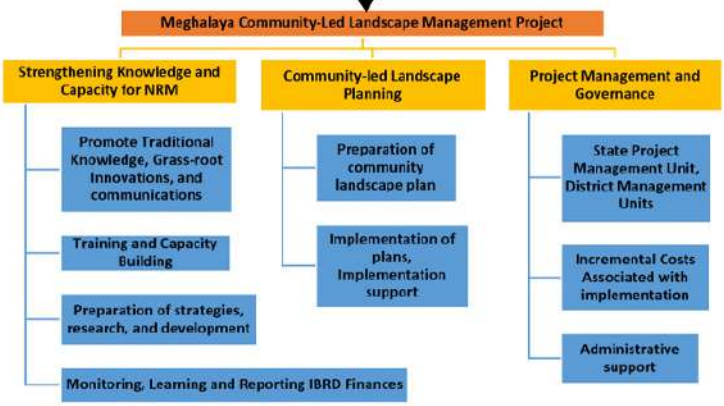


Fig. - 1 : Components of the ESS

Fig. - 2 : Components of the MCLLMP



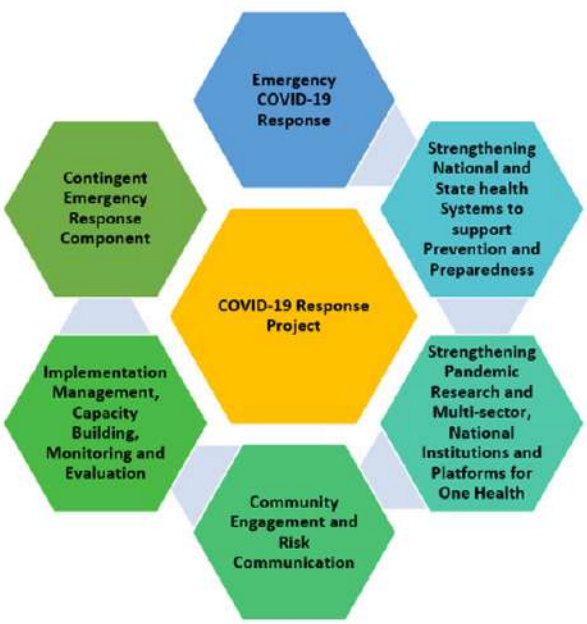


Fig. - 3 : Components under the COVID-19 Response Project

Understanding India's Economic Slowdown

- By Souroshi Saha[1], Soumyajit Paul[2] & Neeraj Chawla[3]

India has experienced a dream run followed by an economic slowdown over the last two decades. The author, R Nagaraj attempted to explain the reasons for both the dream run and the economic slowdown in this paper. With an annual growth rate touching 8-9% between 2003 and 2008 and a large inflow of foreign capital in form of FDI, FPI, and external commercial borrowing, India was being hailed as one of the fastest-growing economies. However, the author pointed out that this growth was a debt-led one.

The Global Financial Crisis of 2008 which followed the boom period had an impact on India by the middle of the second decade with lower output growth translating into significant job loss for the citizens, affecting the earnings of private corporate houses. This made it difficult for them to service the debt they had accrued during the boom. As a result many of these loans became NPAs which restricted the banks' ability to offer new loans.

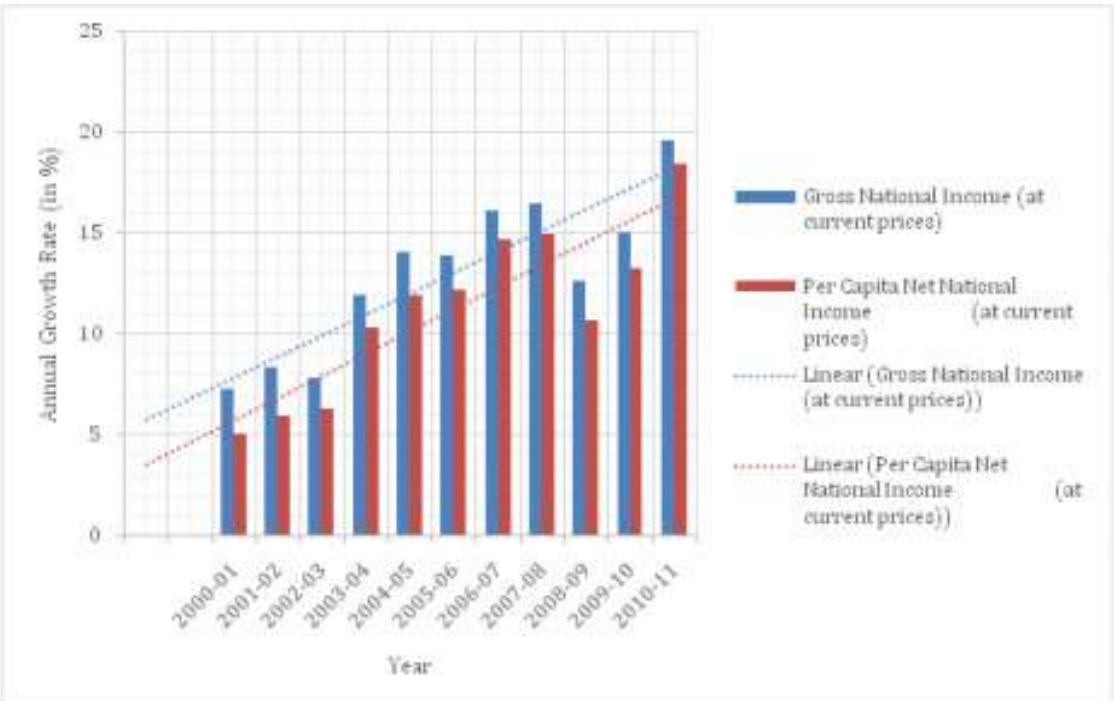
To resolve the problems, the newly elected government adopted the motto "minimum Government, maximum governance" and introduced policy reforms such as a new tax system (Goods and Service Tax; GST) and demonetization. India's ranking in the World Bank's Ease of Doing Business (EDB) improved under the new administration, rising from 42ndin 2014 to 63rd in 2019. There was a large rise in real GDP in 2016-17 as compared to 2011-12, but the increase in GDP was said to be overestimated. The primary sector was seriously harmed, rural incomes remained stagnant, and overall, all three sectors' employability suffered. This period was termed job-less growth since the GDP growth was accompanied by mass unemployment and serious poverty. The disaster triggered by demonetization and improper implementation of GST is cited as the primary cause of the economic slowdown.

1,2 & 3 : Alumni, Economics, The Heritage College (2017-20)

From the macroeconomic point of view, the slowdown in output growth is from the demand side and a high level of debt. A major policy that could help India recover from the slowdown is the revival of investment growth and public infrastructure improvement (creating productive assets). R Nagaraj concludes by illustrating that the slowdown is not a mere short-term phenomenon. If it is not dealt with implementing a proper policy targeting the areas that need the most attention, loss in economic welfare is inevitable, thereby worsening India's position in the global economy.

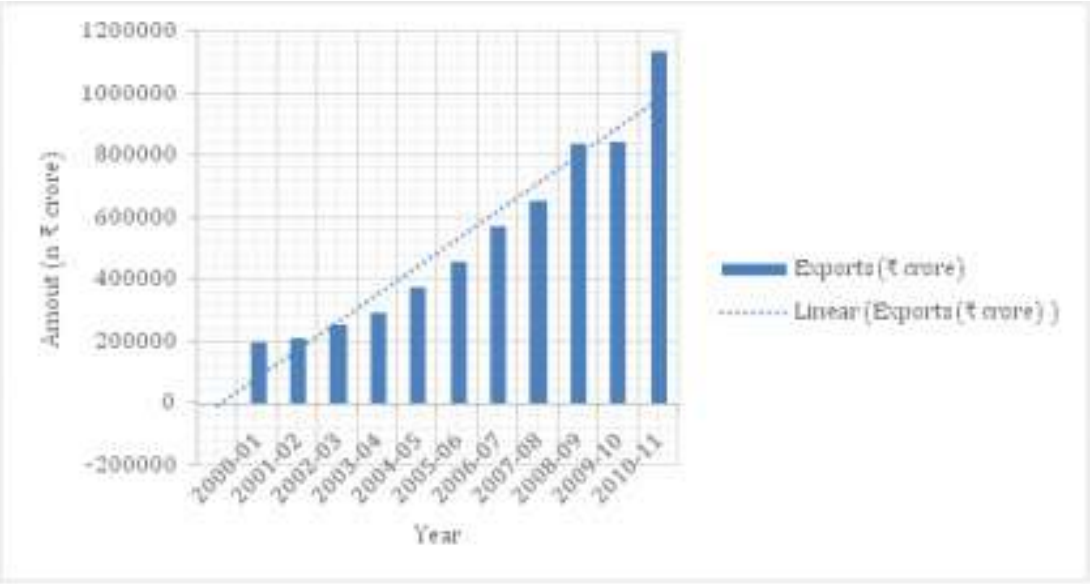
During 2000-2008 India witnessed a rise in the annual growth rate of gross national income and per capita net national income (both at current prices) along with a continued rise in exports and foreign exchange reserves. The following graphs obtained from the Economic Survey 2020-21 (Statistical Appendix) supports the author's observation:

Table 1: Increasing Annual Growth Rates of Gross National Income (at current prices) and Per Capita Net National Income (at current prices) during 2000-2010



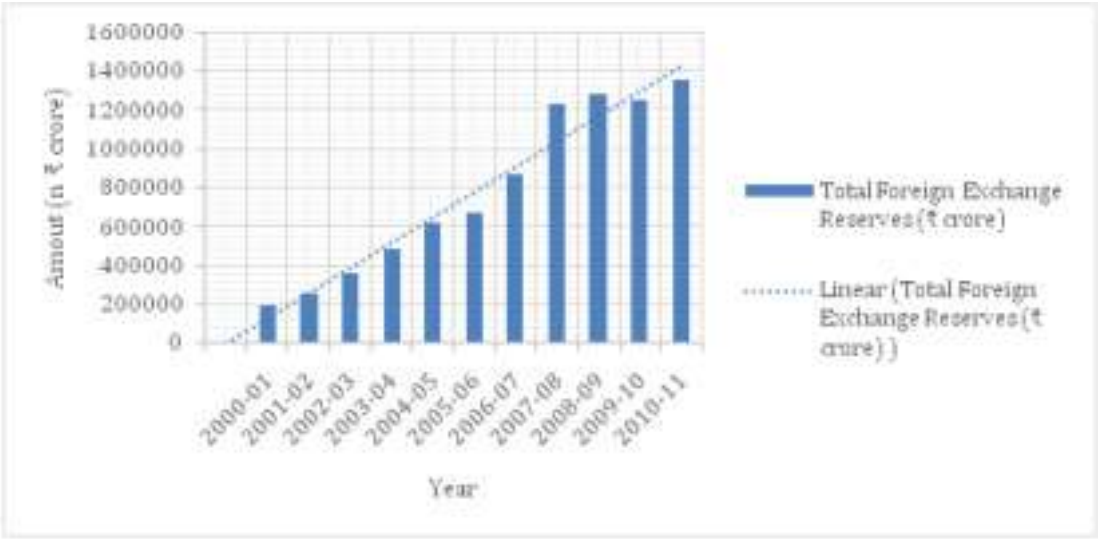
Source: Table A4, Statistical Appendix, Economic Survey 2020-21

Table 2: Continuous Rise in Exports during 2000-2010



Source: Table A95, Statistical Appendix, Economic Survey 2020-21

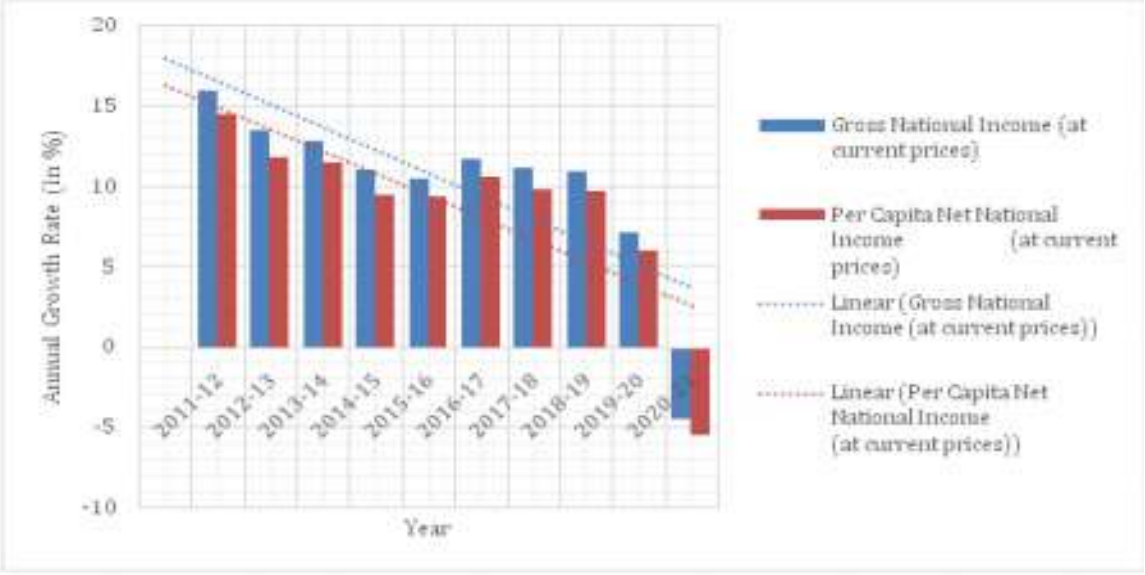
Table3: Rising Total Foreign Exchange Reserves during 2000-2010



Source: Table A81, Statistical Appendix, Economic Survey 2020-21

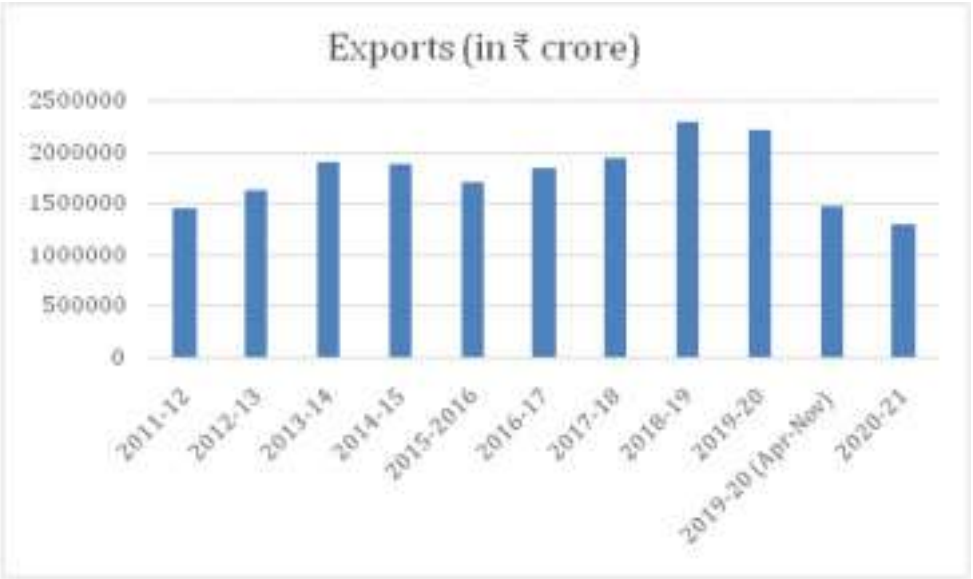
The above graphs depict the rising annual growth rates of national income (gross and per capita net), export, and foreign reserves during the 2000s and that despite a brief dip in 2008-09 due to the Financial Crisis of 2008; India was able to recover and flourish. However, during the second decade India experienced a fall in annual growth rates of Gross National Income (at current prices) and Per Capita Net National Income (at current prices) and experienced fluctuations in the volume of exports (in Rs. crore) as observed in the graphs below:

Table 4: Decreasing Annual Growth Rates of Gross National Income (at current prices) and Per Capita Net National Income (at current prices) from 2011



Source: Table A4, Statistical Appendix, Economic Survey 2020-21

Table 5: Fluctuations in Exports of India from 2011



Source: Table A95, Statistical Appendix, Economic Survey 2020-21

Demonetization imposed by the new Government in 2016, came as a macroeconomic shock, devastating the informal sector, which employed nearly 90% of the workforce and contributed nearly half of the domestic output. The introduction of GST in 2017, replacing various indirect taxes came as a second shock to the nation, which not only affected the small enterprises but also the Government finances and sharing of revenue between the Centre and the states. A key reason behind introducing GST was to improve the ease of doing business in India by eliminating the inconvenience of paying multiple indirect taxes. This would further motivate the citizens to set up new businesses thereby creating more jobs and contribute towards GDP growth. The higher output and subsequently higher income of such businesses would also ensure that they regularly pay taxes to the government leading to the rise in tax revenue and elimination of the problem of tax evasion. Hence a tool to measure the effectiveness of GST is the Tax Revenue (as a percentage of GDP). Table A58 of the Statistical Appendix of Economic Survey 2020-21 shows that after the introduction of GST in 2017, the Tax Revenue (as a % of GDP) decreased from 7.3 in 2017-18 to 6.9 in 2018-2019 and further to 6.7 in 2019-2020 thus showing that GST did not help to bring India

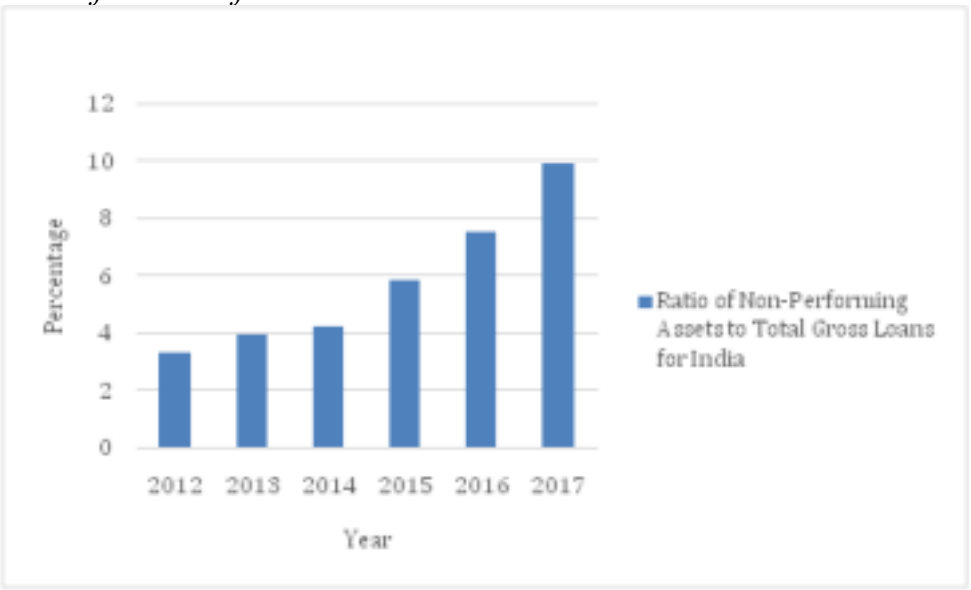
out of the economic slowdown. Table A57 of the same survey shows that during this period the Revenue Deficit (Revenue Expenditure-Revenue Receipts) of the government increased from ₹316381 crores in 2016-17 to ₹667511 crores in 2019-20 coupled with a rise in borrowing from ₹535618 crores in 2016-17 to ₹935635 crores in 2019-20. Thus the tools of GST and Demonetizationimplemented by the Government of India were not very effective to deal with the issue of economic slowdown.

In such a scenario, the Government believing that a fiscal stimulus would result in considerable improvement, implemented nationalist projects like 'Make in India' to create a plethora of manufacturing sector jobs, targeted to increasing welfare for the women, poor and unemployed sections of the society. By promoting import substitution and export promotion, this project helped India become self-dependent and redirected investment back into the Indian economy which would have otherwise flown outside the country.

The author explains that from a macroeconomic view, the slowdown in the growth of output is from the demand side, which fell due to a fall in gross capital formation, which principally occurred due to the decline in the private corporate sector. Irrespective of India being a consumption-led growth country it should be understood that for achieving higher economic growth, stepping up domestic investment is extremely crucial.

However, reviving the private corporate investment was constrained due to rising bank non-performing assets (NPAs) as a proportion of total bank advances. A study by Das and Ghosh (2007) revealed that at the macro level, GDP growth and at the bank level, real loan growth, and bank size play an important role in influencing the problem of NPAs. Misra and Dhal (2012) highlighted the positive relationship between a bank's size and its share of NPA by showing that large banks are more likely to have relatively more NPAs, due to balance sheet constraints. The following graph obtained from the annual report of Bangladesh Bank (2006-17) highlights the significant rise in NPA in India during 2012-17 through the tool of 'Ratio of Non-Performing Assets (NPA) to Total Gross Loans'.

Table 6: Rise is the ratio of Non-Performing Assets (NPA) to Total Gross Loans for India from 2012 to 2017



Source: Annual Report of Bangladesh Bank (2006-2017)

Some of the causes for such a rise in NPA are:

1. Legal impediments and time-consuming nature of asset disposal process.
2. Banking sector's inefficiency in loan screening and lending practice along with deep-rooted crony capitalism.
3. Loan sanctioning procedure in favour of politically exposed persons (PEPs) made the loan vulnerable. Sometimes managers were under great pressure to disburse loans to the PEPs. In that case, a loan had been disbursed without proper or adequate credit assessment or sanction procedure either in terms of the viability of the project or the proper valuation of collateral which ultimately became defaulted.

Some mechanisms which can be used to tackle this problem are:

1. Strengthening of legal rules and regulations and aligning prudential norms with international standards.
2. Proper monitoring by the loan issuing bank to prevent clients from diverting funds from other activities.
3. Legal mechanisms including the creation of ARCs(Asset Reconstruction Companies) to help recover the debts

Despite highlighting the majority of the factors, which resulted in the economic slowdown in India, the author failed to point out how the global slowdown contributed to the economic slowdown in India. India is an active commodity exporter and the global slowdown has led to a decline in the volume of exports which impacted Foreign Direct investment (FDI). Hence one of the most effective solutions to recover from the economic slowdown is through greater public investment in large infrastructure projects which can boost the overall level of domestic demand, output, and employment in the country.

References

Bangladesh Bank. (2017). *Annual Report (2006-2017).* Dhaka

Das, A.; Ghosh, S.(2007). Determinants of credit risk in Indian state-owned banks: An empirical Investigation. *Economic Issues Journal Articles, 12(2),* 27-46.

Dhal, S.; Mishra, M.(2012). Pro-cyclical Management of Banks' Non-Performing Loans by the Indian Public Sector Banks.*BIS Asian Research Papers,16,* 1-23.

STATISTICAL APPENDIX: ECONOMIC SURVEY 2020-21. (2021). *Department of Economic Affairs.* New Delhi

> Arise, Awake and Stop not till the goal is reached.
>
> - Swami Vivekananda

STUDENT ARTICLES

A Study on How The Rich Got Richer During The Pandemic

- Sreeja Ghosh Dastidar*

Last year, the world was hit by a raging pandemic – Covid 19 and along with the world, the economies of the world also took a hit. As the cases rose worldwide, the stock markets dipped, unemployment rose, and the markets came to a temporary halt. Due to the Pandemic, millions of people lost their means of livelihood as companies ran into losses and businesses shut down globally. The Pandemic posed a challenge to worldwide work culture and health infrastructure. While the poverty rates increased, the world also witnessed a sharp increase in the wealth of the "Super-rich".

According to some studies, the total worth of the Billionaires in the world rose by USD 11.95 Trillion, i.e., the wealth of billionaires saw an increase of 27% worldwide. Among these Billionaires, the ones who gained the most were the CEO of Tesla, Elon Musk and the CEO of Amazon, Jeff Bezos. The Swiss Bank USB states that while the poor became poorer, the riches of these men skyrocketed more than a quarter during the peak of the pandemic in April-June 2020. When the stock markets had dipped in the initial stages of the pandemic, several businessmen utilized their "risk appetite" to acquire several company stocks. Soon, the recovery of the global stock markets covered the losses that had occurred and the stock prices of several technological companies rose sharply.

The CEO of Tesla, Elon Musk had a net worth of USD 25 Billion at the beginning of the pandemic. His net worth saw an unimaginable boom of 524% and peaked at USD 154 Billion by the 31 December, 2020. Reports suggest that this peak happened because of two major reasons; according to CNBC, Tesla's stocks surged by 650% after it

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reported its fifth consecutive profitable year in 2020. Elon Musk, who owns a roughly estimated 20% of Tesla's share, naturally saw an increase in his total net worth. Space-X, Musk's aerospace company, also had a big year as they launched their first astronauts into space. Morgan Stanley, a New York-based investment bank quoted their estimation of Space-X as their "Bull case" and estimated its value at USD 200 Billion. As per Wealth-X estimations, Musk owns stock worth USD 15 Billion at Space-X.

As the pandemic continued to spread, numerous countries went under several lockdowns throughout 2020. As people stopped going out, *e*-commerce websites flourished and online shopping witnessed a new boost. Amazon CEO Jeff Bezos, who started 2020 as the wealthiest man in the world, saw a net increase in his wealth by USD 72 billion. At the beginning of 2020, the Amazon capital market was valued at USD 920 billion. After the stock markets bounced back from the Covid market sell-off in March, the same capital market was valued at USD 1.4 Trillion. As per reports by Forbes, the Amazon stock value saw a 60+% increase in its value. Bezos, who owns 11.1% of the stocks of Amazon, witnessed his net worth grow by 65% due to the boost in Amazon's stock in 2020, and holds the position of the world's richest man with an estimated net value of USD 187 Billion.

Others who witnessed an increase in their net worth were Mark Zuckerberg, CEO of Facebook. Although there was an antitrust lawsuit filed against Facebook by the Federal Government, Zuckerberg's net value rose by 50% from USD 55 Billion to USD 102 Billion.

Microsoft CEO Bill Gates started 2020 as the world's second-richest man but was surpassed by Elon Musk in November 2020. At the end of 2020, Bill Gates acquired the third richest man's position with an increase in his net worth from USD 98 Billion to USD 120 Billion over the year.

The pandemic has harmed worldwide markets. However, during this pandemic, what became more glaringly obvious was the wealth disparity between the super-rich and the majority of the public.

While reporting this increasing disparity, The Guardian reported that growing riches of the already super-rich could cause public and political anger. Several governments have received pleas to tax the super-rich heavily to compensate for the unprecedented economic havoc which was caused by the pandemic. The BBC reported that the charity Oxfam reported that the combined rise in the value of the billionaires, which stood at USD 540 Billion in 2020, would be enough to pay for vaccines for the entire world and save it from slipping into poverty. While the super-rich hold the maximum concentration of the world's wealth, they have made donations towards several philanthropic causes.

Although the world economy is projected to recuperate from the Covid crisis, statistical data has predicted only a 2% drop in the GDP of the USA as compared to what it would have been without the impact of this pandemic. While the virus and its mutants still shake up health infrastructures, a recent study by McKinsey Global Survey (carried out in March 2021) showed that 95% of its executive respondents feel that the economy of their respective countries (United States, China, United Kingdom, etc) will witness growth in the next six months. Keeping aside the country's individual economic growth, the pandemic has, at present, produced 9 new billionaires. These billionaires earn not only from the businesses they own or run but also from several passive investments in shares and equities which have witnessed a period of massive boom. The pandemic has aided the growth of these billionaires as well as ensured a secure future for their businesses in the market by providing them with innumerable opportunities to acquire various stocks and invest heavily at cheaper prices.

Move towards A Cashless Economy

- Sourika Banerjee*

As the countries evolved, it's the paper currency that has been dictating the world, causing the rise and fall of economies, and sometimes even leading to cold wars. However, nowadays it has been observed that there has been a strategic shift in the economy and 'digital trend' does play an important role in it. As the title suggests, a cashless economy refers to the flow of currency through electronic channels such as debits or credit cards, internet banking, mobile banking, Point of Sales (POS) and e-wallets. As the broader financial markets go through technology transformation the competition in digital payment methods is getting fierce and as a result, today cash seems no longer to be the dominant payment method across nations. It is important to understand and evaluate which technology is leading the evolution in digital payments.

A **cashless economy** is a new concept having been introduced in the 1990s. However, in earlier times, the barter system is often referred to as the primitive means of a cashless economy when people did not have specific currencies.The world will inevitably be heading towards a **cashless economy** as digitization has been going on for a while. Moreover, due to the fast pace of digital services, growth and consumer expectations there are still many small cities and touristic locations across the world that lack sufficient infrastructure while employers lack basic digital skills meaning they will probably lose business as consumers choose other locations to spend their money.

Some countries are well developed and can go with cashless currency, they are doing it for seventy-five percent of the transactions as we speak, but there are developing and underdeveloped countries also

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and they will face problems in going cashless and are not ready for cashless currency since the unorganized sector that primarily depends on cash transactions, constitutes a major part of these economies.

However, many countries have already been on their way to becoming cashless. In Kenya, more than seventy-five, percent of adults use the mobile wallet service **M-Pesa.** Nearly a third of the Danish population uses **Mobile Pay,** a smartphone application for transferring money to other phones and shops. **The Bank of England** said debit cards overtook cash to become the number one payment in the UK for the first time in 2017. The current rate of decline means that cash would end in 2026. Through recent observation, it has been noticed that Australia would emerge as the first cashless economic nation in 2022. However, India has essentially been a cashed economy. One study shows that India spends 1.7% of its GDP on cash just to quint cash. Moreover, India is the only country with a Unified Payment Interface (UPI) in the bank and several experts have said that India's digital payment infrastructure is five years ahead of the United States of America. Sweden is one of the countries in which electronic payment is being used commonly these days. It is common to see signs such as "**no cash accepted".**

Crypto currencies used in payments is also on the rise giving the low costs of transaction associated with them. The fact that is challenging to trace crypto transactions has also seen their popularity skyrocket, especially among people who cherish their privacy.

Cashless transactions have made people keep their cash in the bank and hence liquidity in the banking system has increased. However, the cost is not the only incentive to move towards a cashless future. Demand is rising. Digital payments are not just neat, it becomes easier for governments to monitor tax evasion and fraud. A cashless economy did also stop the flow of black money to some extent for example in a country like India. Going cashless can also be beneficial to retailers. It provides safety to the employees of the business by not putting them at risk of robberies. Moreover in a cashless economy

companies and governments will get efficient and they can reduce costs as they no longer need the manual accounting work to be done. The costs associated with counting and handling cash are very high as it saves money and time. As the progression of non-cash transactions evolves rapidly the advancement in technology is fundamentally changing the way one pays for goods and services.

In a cashless economy, every single payment automatically recorded is efficient but there is a downside. Let's assume for example that a country that used to be democratic where people were not paying too much attention to safeguarding their privacy becomes undemocratic and someone wants to control citizens more closely, they will have to interfere with what one buys by monitoring what one is doing. Electronic money trials can allow governments and private companies to access and harvest personal data.

The **COVID-19** pandemic has turned business on its head, previously start-ups have had their investments while titans of industry have seen their shares tumble and production halted. Companies have had to drastically change the business mobiles to keep pace with governmental guidelines, a feat which has been better managed by some than others. In such uncertain and unforeseen situations it is indeed difficult for companies to act accordingly. However, the move to digitalization would be a move in the right direction for many.

Experts say that the world will be having a cashless economy within five to eight years. Others, such as Professor Richard Holden from the UNESCO Business School, say it could happen within three years. It is said that the first truly cashless society would be a reality by 2023 according to a new report from global consultancy A.T.Kearnlyn which said that "**in just five years we would be living in the very first cashless society"**

However, to become a cashless city, cities will need backing from technology partners and banks that can set up payment kiosks to make public transport and other transactions seamless. Cashless

transactions and a sustainable digital framework for money are vital parts of a smart city. It is better to think **long-term.** It is better to create incentive and disincentive structures by which people are automatically encouraged to move towards digital transactions. With the shift to cashless comes a series of challenges that need to be solved, otherwise one might end up reducing or straight up eliminating certain civil rights on which the societies are built.

> Darkness cannot drive out darkness; only light can do that. Hate cannot drive out hate; only love can do that.
>
> - Martin Luther King Jr.

Central Bank Digital Currencies

- Garvit Raheja*

"The future of money is digital currency"- Bill Gates

Digital property and forex from valuable financial institutions, and digital currencies to crypto currencies gained maximum momentum during the recent past.

Let us now explain the concept of Central Bank Digital Currency (CBDC). Virtual currencies or crypto currencies are gaining a reputation across the world. This has made most important banks to launch digital forex control mechanism with the aid of which they can deal with their shortcomings whilst hastening the shift in the path of a cashless society. CBDC is a digital currency that can be transformed/ exchanged at par with further denominated coins and traditional imperative financial institution deposits of a state.

The Finance Ministry's committee proposed the concept of introducing a virtual Rupee in February 2019.

There are different types of CBCDs as noted below:

(1) Retail: Retail CBCDs are intended for use by individuals, households and corporations.
(2) Wholesale: Wholesale CBCDs are intended for use via monetary institutions.

In case of India, the Reserve Bank of India (RBI) noted that technological advancements are rapidly transforming the payments landscape, prompting central banks throughout the world to consider whether they might use technology to issue fiat money in digital

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form. The Reserve Bank of India has announced that it is conducting a feasibility study into the creation of a government-backed digital currency.

At the moment, important banks from a variety of countries are looking at the benefits that a virtual currency can bring to monetary inclusion, financial growth, technology, innovation, and increased transaction efficiencies. Some the benefits of government-backed digital currency are:

a) Actual-time money switch: Cash transfers and payments can be made in actual time from the payer to the payee without the use of intermediaries such as banks.
b) Clean monitoring of foreign money: With the advent of CBDC in a country, its valuable financial institution might be able to keep a tune of the exact vicinity of each unit of the currency.
c) Tax: Tax avoidance and evasion may be difficult to achieve because techniques such as offshore banking and unreported employment cannot be used to conceal financial activities from the primary bank.

In May 2020, China commenced testing its digital Yuan-- virtual Renminbi (RMB).Several different countries have also started research and pilot initiatives related to CBDC along with Canada, America and Singapore. In addition, China and the USA are combating to gain supremacy across markets with the advent of latest-age financial products and India can also get caught up in this digital proxy battle. The needs for CBCDs in India are as follows:

a) The digital Rupee allows India to establish the digital Rupee's dominance as an advanced currency for trade with its strategic partners, reducing its reliance on the dollar.
b) This will additionally empower RBI to reveal transactions and credit floats across the Indian financial system, removing scams, frauds instantly, thereby defacing depositors' cash.

c) CBDC can even help in distracting the investors from investing inside the contemporary crypto assets that are particularly risky.

“Virtual Currencies may hold long term, promises particularly if the innovations promote a faster, more secure and more efficient payment system”-BEN BERNAKE.

> The weak can never forgive. Forgiveness is the attribute of the strong.
>
> – Mahatma Gandhi

Economic impact of Suez Canal blockage

- Shivam Maheshwari*

Suez Canal is a man-made iconic passage connecting the Mediterranean Sea and the Red sea and opening a way for Asia and Europe to join hands. It happens to be one of the busiest maritime pathways that serve a significant role in backing the rapid globalization of the 21st century (a gateway to more than 50 cargo ships daily carrying an economic output worth $9.6 billion approximately). In the late 19th century, this masterpiece witnessed its inaugural ceremony towards serving the world.With millions of workers and modern technocrats (of the time), it took almost ten years to complete this 193 km massive project. When it came to its authority, we saw what today is known as 'The Suez Crisis,' wherein Britain and Israel revolted against this move of Egypt and gave rise to one of the deadliest massacres. Finally, Egypt was the winner of the deal, thereby nationalizing it in the mid-1900s. Today the country earns billions of dollars ($5.6 billion in 2020) in terms of ship toll from its second-highest income source.

Having given you a glimpse of its past, let's move forward to 23rd March 2021, which marks an unprecedented blockage in its path. A 200,000-ton massive cargo ship with a length of 1300 ft. and loaded with 18000+ crates of transport materials got stuck on the east coast of the Suez Canal. Reasons being poor visibility, high winds, and sand storms, but some say that these may be subject to conspiracy. Led by 25 Indian crew members, the vessel 'Ever Given' is owned by Japanese company named Evergreen and was sailing from Malaysia to the Netherlands. Now when I say (but I hate to say so) 'conspiracy' and 'Indians' in the same context, ironically, it creates a subsequent perception in the minds of various think tanks and investigators across the globe. However, we are off the hook because

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such large containers are generally guided through the canal by the Egyptian marine pilots. I guess the image below more or less sums up the situation, and given the facts above, I want you to feel the intensity of its impact.

Speaking of impact, I want you to imagine a situation wherein you expect the delivery of a product which was coming from a foreign nation in a few days. Suddenly, you receive a notification that your delivery got delayed by 2-3 weeks—shocked, right? This explains the direct impact that blockage in such a canal had on the global supply chain. Given the alarming condition of COVID-19 across the globe backed by an extraordinary demand from consumers, supply was already enjoying a blessing in disguise (sarcastically speaking). Let's do a little bit of math here and estimate the ripple effect of this ship blockage. With the number of candidates queuing up to cross the channel, crates got stuck in one place, thereby bringing the global trade to a standstill. The rise in freight due to equipment shortage became a concern for companies all across. Respective shipping companies were already embarking on the unsavoury decision of rerouting through Africa's Cape of Good Hope to reach Europe, but things weren't that easy. This option would have added two weeks to the trip, requiring more fuel with an additional danger of the Somali pirates on the way. Oil prices and its stocks and futures had already surged even before undertaking any such stern action. Ever given carried 18000-20000 crates filled with products ranging from rare earth elements, oil, and natural gas products to consumer durables and semiconductors. Delayed supply, increased demand, and subsequent increase in ocean freight rates call for disequilibrium and an inflationary situation in the concerned economies.

To state some solutions, experts suggested that along with dredging into the seabed and excavating mud from the corner of the ship, unloading the cargo would have helped accelerate our effort towards our notion. Nonetheless, marine engineers repelled from unloading because with both its end stuck in the land, lightening its weight would have caused a catastrophic breakdown of the vessel. After 6-7 days of ongoing excavation and dredging underneath the water,

‘Ever Given’ finally restored “on its destined path.”

To prevent such mishaps in the future, busy waterways must have a multi-lane facility in the first place. Critics also say that the ship was sailing at a speed of 13 knots, whereas 7 knots would be more than enough to satisfy trading activities, and hence such measures should be implemented with strict invigilation. If you see the graph below (showing the demand for shipping crates), you will observe that demand for such boxes has been persistently rising over the past ten years. As a result, I think investing in the effective production of these containers would be a prospective investment. No doubt the freight charge is on a per crate basis, and it is constantly rising, but we can combat that by influential and innovative road, rail, and air transport backed by enough prominent shipping containers.

As you can see in the picture above, after days of hard work and cooperation, the ship was finally getting along pretty well, saving us from all the additional trouble that was about to follow, be it rerouting of other candidates or inclusion of cranes and helicopters in unloading this giant beauty. They say ‘anyone can hold the helm when the sea is calm, but when the sea casts its spell, holds one in its net of wonder forever.’ Still wondering what would have happened if the process lasted for a few more days!

> Life loses half its interest if there is no struggle,
> if there are no risks to be taken.
>
> - Netaji Subhash Chandra Bose

Impact of Covid-19 on the Indian Stock Market

- Rohan Patranobish*

The corona virus outbreak, brought about by the unprecedented spread of the Sars-CoV-2 virus, originating from the city of Wuhan, China, has brought the whole world to a standstill. Millions of families have been severely affected as well as millions of people have lost their lives. The rapid spread of the COVID-19 pandemic has led to a downturn in the global economy. Several countries have adopted strict lockdown policies which have resulted in a halt in economic activity. Uncertainty and risk created due to this pandemic have affected both the developed as well as emerging economies like the USA, Brazil and India and has led to falling in investments in stock markets. Due to this pandemic, there is a large fall in the price of oil (due to a rapid fall in demand) and a huge increase in the price of gold. Businesses are highly indebted in many countries, weak companies have been further destabilized and corporate debt has reached a very high level. The pandemic has led the global financial market to strike out around $6 trillion from 20th to 24th January. Uncertainty has also affected the rate of dividend return on stocks and hence stock sales.

The Indian Stock Market consists of the Stock Markets of BSE (Bombay Stock Exchange) and NSE (National Stock Exchange). The BSE launched its sensitivity index, SENSEX (Presently known as S&P BSE SENSEX) in 1986. Its contender the NSE had launched CNX Nifty, presently known as Nifty 50, in 1996. The SENSEX consists of around 30 organizations divided into 15 sectors and is a benchmark stock index, estimating the overall performance of the exchange whereas

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the Nifty 50 of the NSE includes 50 stocks divided into 14 sectors and also functions as a performance measure of the exchange. The country's economic standing can be analyzed by observing the values of SENSEX and Nifty.

Economists, in their research on financial markets and banks, have found that there is a fall in the share of oil, equity, and investments throughout the world as a result of the pandemic. In Britain, the Financial Times Stock Exchange (FTSE) 100 index witnessed a sharp 1-day fall since 1987. Economists are of the unified view that the shock from the pandemic can increase the volatility, negatively affecting the economic and financial system of every country. There has been a drop in the SENSEX index to 13.2% on March 23, 2020, the single highest single-day fall since the Harshad Mehta Scam. Similarly, Nifty had also declined to almost 29% during that period. Some economists have considered the impact of COVID-19 on the Indian stock market as a "black swan event." Due to lockdown policies adopted by the country, the labor force has been substantially reduced which has affected the supply chain. The main reasons for the decrease of labor forces have been the exodus of migrant laborers due to the growing concerns of infection. People have also reduced their consumption habits. The pandemic has undoubtedly affected both the demand and the supply chains.

Delving deep, it was found that the consumer goods sector (SENSEX-11.89%, NIFTY-14.46%) has faced an increased demand. The lockdown had been instrumental in driving people to stock up food materials and stop social contact altogether.

Fast Moving Consumer Goods giants like Britannia, Nestle, ITC, Hindustan Unilever, etc have faced a very high demand with a sales boom for the pandemic. The sales boom has been largely driven by rural demand and can also be attributed to the ramp-up of supply chain and logistics which have enabled micro as well as macro distribution. The oil and gas sector (SENSEX-14.71%, NIFTY-12.44%) has suffered miserably due to the raging pandemic. The demand for automobile fuels as well as turbine fuels has decreased due to global and domestic travel being shut. The oil and gas sector has seen very

low demand and therefore low sales of stock.

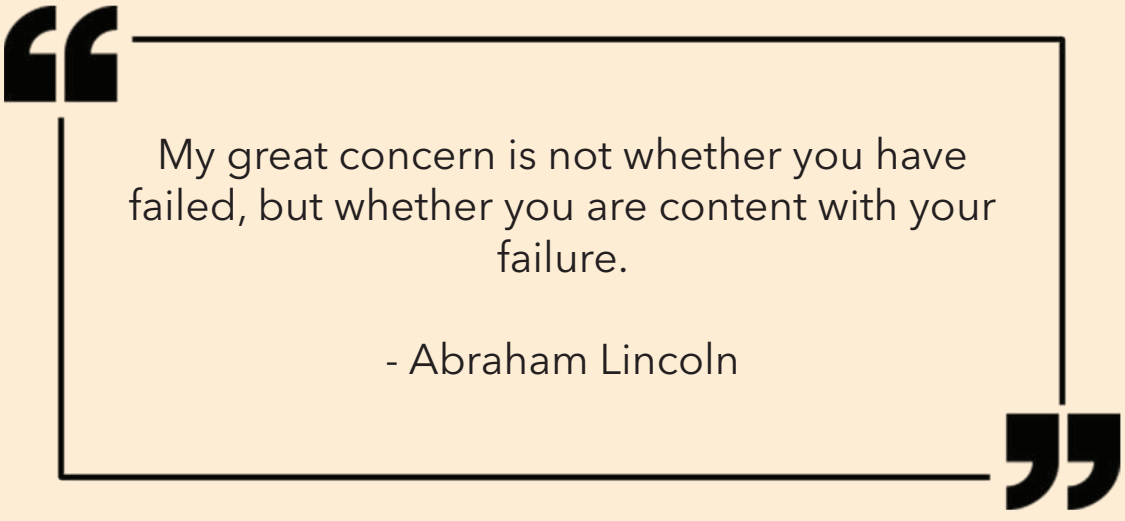
The automobile sector (SENSEX-5.15%, NIFTY-4.53%) has faced the worst consequence because of the pandemic. It has faced heavily due to the rapidly falling demand and the closure of ancillary industries such as the tyre industry, car body industry, etc. The juvenile Electric car Industry has also been severely hit. However, giants like Hyundai, Honda, and Kia, etc. have still managed to show relativistic growth in the Indian Market.

The telecom sector (SENSEX-4.40%, NIFTY-3.13%) has been one of the most fundamental services during the pandemic. The telecom sector has played a key role in helping governments and organizations with convenient correspondence, tracking and furthermore helping with telecommuting. The new 'WFH' (Work from Home) as a way of conducting corporate work and businesses has caused an overabundance of demand for broadband and internet services. The telecom sector along with the consumer goods sectors has been the only ones witnessing a stock sales boom. Despite the fact that India is one of the top producers and exporters of medicine in the world, the Pharma sector (SENSEX-1.72% and NIFTY-2.72%) has faced a downturn due to the shutdown of imports from China.

The metallurgy sector (SENSEX-0.53%, NIFTY-2.52%) has witnessed a significant blow in mining, production, as well as distribution. India's steel industry which contributes to around 35% of the country's GDP has suffered from the lack of manpower and transportation. The cement and construction industry along with the Real Estate industries have also seen a rapid fall in demand.

On the Global Front, there has been a significant drop in stock Indices of NYSE (New York Stock Exchange), FTSE and Shanghai Stock Exchange. The USA has shown a negative GDP growth of -4.7% during the financial year 2020. China on the other hand has shown a marginal 2.3% positive growth of GDP in the financial year 2020. India has shown a negative growth of GDP at -7.97% compared to the GDP of 2019. Although the GDP had shown a negative growth, cash liquidity in the market was stable.

In conclusion, it can be said that both the Indian Stock market and the Indian Economy has faced an excruciatingly painful blow due to the sudden onset of the pandemic. From 1st December 2019 to 31st march 2020, NIFTY 50 & SENSEX both took a dip of 31.954% and 31.1769% respectively. An early lockdown had somehow softened the blow yet for an emerging economy like India, it has negatively affected the essential industries and services. Doubtlessly it would take time for the Indian Stock Market to get back on track again but the current scenario, fortunately, is hopeful. It is said that "Every cloud has a silver lining." and it is quite true for the Indian Economy. The pandemic has rattled the world dominance of China as one of the biggest production economies and has sent investors and businessmen in search of a country that has the potential to rival China. Economists at the IMF, WEF have stated that the upcoming 10 years are the "make-or-break" period for the Indian Economy. Several investors and businessmen are investing in India as a result of which new companies, enterprises and startups are coming to India, each adding to the economy, GDP, per capita income growth as well as reducing the problems of unemployment and inadequate raw material utilization. Hence, it can be stated that although the coronavirus has been like a dark cloud over the economy of India, its departure will bring forth a shining sun over the country, a better and more prosperous India.



Importance of Behavioural Economics

- Arushi Choudhury*

Behavioural economics is a discipline that incorporates perspectives from psychology, economics, judgment, and decision-making, and neuroscience to better understand, predict, and eventually improve human behaviour in ways that none of those disciplines could offer on their own. Understanding behavioural economics is important for marketers because it helps them to gain a greater understanding of the human mind.

In a perfect world, people will always make the best choices that favour them and give them the most pleasure. When humans are faced with multiple choices in a scarcity situation, the rational choice theory claims that they will select the option that maximizes their individual satisfaction. This theory suggests that people will make reasonable decisions based on their desires and constraints by effectively comparing the costs and benefits of each choice available to them. The final decision would be the best option for the person concerned. The rational person has self-control and is unaffected by impulses or outside influences because he decides what is best for him. However, behavioural economics suggests that humans are not always rational and might fail to make rational decisions. Behavioural economics combines psychology and economics to investigate why people make irrational choices and why and how their behaviour differs from what economic models expect. Behavioural economics attempts to understand why people tend to choose certain options in their day-to-day lives over others. Heuristics, or the use of rules of thumb or mental shortcuts to make a fast decision, is one application of behavioural economics. Heuristics, on the other hand, may lead to cognitive bias if the decision taken is incorrect.

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As game theory runs experiments and analyses people's decisions to make irrational choices, behavioural game theory, an emergent class of game theory, can also be applied to behavioural economics. Behavioural finance, which aims to understand why investors make rash decisions while investing in the financial markets, is another area where behavioural economics can be applied. Behavioural economics is constantly being used by businesses to boost product sales. The 8GB iPhone was first released in 2007 for $600 and was soon reduced to $400. What if the phone's intrinsic value was $400 anyway? If Apple had launched the phone for $400, the market's initial reaction to the price would have been negative, as the phone would have been perceived as too expensive. However, by launching the phone at a higher price and then lowering it to$400, customers assumed they were having a decent offer, and Apple's profits soared. Consider a soap company that makes the same soap but sells it in two separate packets to cater to different demographics. One kit caters to all soap users, while the other caters to those with sensitive skin. If the packaging had not mentioned that the soap was for sensitive skin, the latter target would not have purchased it. As businesses recognize that their customers are irrational, a successful way to incorporate behavioural economics into the company's decision-making policies affecting internal and external stakeholders can prove worthwhile if done correctly.

Richard Thaler, a professor of the University of Chicago who won the Nobel Memorial Prize in Economic Sciences is considered the father of behavioural economics. The conviction that most, if not all, human actions can be easily explained by relying on the premise that our interests are well-defined, consistent over time, and rational has long distinguished economics from other disciplines. Thaler started questioning this view in the 1990s by writing about behavioural anomalies that could not be explained by mainstream economic theory. He co-authored Nudge: Improving Decisions about Health, Wealth, and Happiness with Cass Sunstein in 2008, which argues that there are many ways to "nudge" people's actions by making subtle adjustments to the context in which they make decisions. Nudges

can help with a wide range of issues that both governments and companies consider relevant. General Electric, for example, decided to fix the problem of smoking a few years back, claiming that it had harmed its workers. They performed a randomized controlled trial in partnership with Kevin Volpp and his co-authors. Employees in the recovery program were paid $250 if they quit for six months and $400 if they quit for a year. No incentive was provided to those in the control group. The treatment group had a three-fold higher success rate than the control group, and the effect lasted even after the rewards were eliminated after a year. General Electric modified its strategy and began using this methodology for its then 152,000 workers as a result of this research. This shows that behavioural economics can have a significant social impact. Behavioural economics can be applied in ways leading to exploitation as well if the company's interests are not aligned with the worker's interests. However, there are also instances where the priorities are matched so the business profits from higher levels of success and motivation, but so do the employees, who are happier with their jobs.

Organizations in both the private and public sectors have used behavioural economics insights to solve a wide variety of issues in recent years, from minimizing tax avoidance, job tension, and attrition to promoting healthier lifestyles, growing retirement savings, and increasing voter turnout.

> When you reach the end of your rope, tie a knot and hang on.
>
> – Franklin D. Roosevelt

India's Approach towards the Renewable Energy Sector

- Shraddha Chaurasia*

The past decades have seen an alarming spike in the population of India, as a consequence of which, India's usage of electricity has also risen. Presently, non-renewable resources like coal, wood and other fuels are used to compensate for this demand but this has resulted in the depletion of said resources and a rise in pollution, which is promoting global warming around the world. India happens to be one of the largest consumers of fossil fuels in the world, which makes investments in the renewable energy sector a matter of prime concern.

Renewable Energy (RE) has been a matter of concern for years now. Renewable technologies are considered as "clean" sources of energy, as usage of these resources would lower harsh environmental impacts and reduce air pollution. The depletion of fossil fuels, increase in pollution, and a rise in energy demand has made energy production from RE resources to be the leading solution. India is already experiencing many of the worst impacts of climate change, because of its vast size and ecological diversity. Natural disasters like droughts and floods have become more frequent and severe, which has caused major damage to nature, local economies and the welfare of the citizens. India's recent floods have wrecked the lives of millions of people.

As a result of improvement in the economy and increasing support from the Government, the renewable energy sector has become attractive from an investor's perspective. Major investors

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in the RE sector in India are Tata Power, ReNew Power and Asian Development Bank, to name a few. India was the first country in the world to set up a ministry of non-conventional energy resources in the early 1980s, with its public sector undertaking- the Solar Energy Corporation of India being responsible for the development of the solar energy industry in India. India is working hard to de-carbonize the nation by adopting newer and smarter technologies through supporting the Research, Development and Demonstration (RD&D) for resource assessments and development of advanced mechanics. The government aims to set up an RE capacity of 227 GW by 2022 and 523 GW by 2030.

The Paris Agreement of 2015, a legally binding international treaty, asked the countries to cut global greenhouse gas emissions in an attempt to limit the rise in global temperatures. India signed the treaty on April 22, 2016, and pledged to be 2 degrees compliant, meaning; it will limit its global emissions to a level of 2 degrees per year, and reduce the carbon intensity of its economy by 33-35 percent by 2030, as compared to 2005 levels. Recent trends show that India is on the path to not only meet but also over-achieve its pledge.

According to an analytics firm, British Business Energy, India ranked 3rd in terms of its RE sector investments and plans in 2020. Investments in the RE sector in the country reached $11.1 billion in 2018 and are expected to attract more than $80 billion in the next four years. This has enabled the power generation from RE sources to reach 127 billion units in 2020. India's hydroelectric power production currently ranks 7th in the world and solar power deployment ranks 5th globally.

The Government had initially targeted installing 20GW of solar power by the year 2022 but it was achieved in January 2018; four years ahead of its scheduled deadline.

India then initiated a new goal of establishing 100 GW of solar power, 60 GW of wind power, 10 GW of biomass and 5 GW of small hydropower by the year 2022. The Northern parts of India have the potential of creating energy power of 363 GW- making it a top

contender in becoming the hub for renewable energy in India.

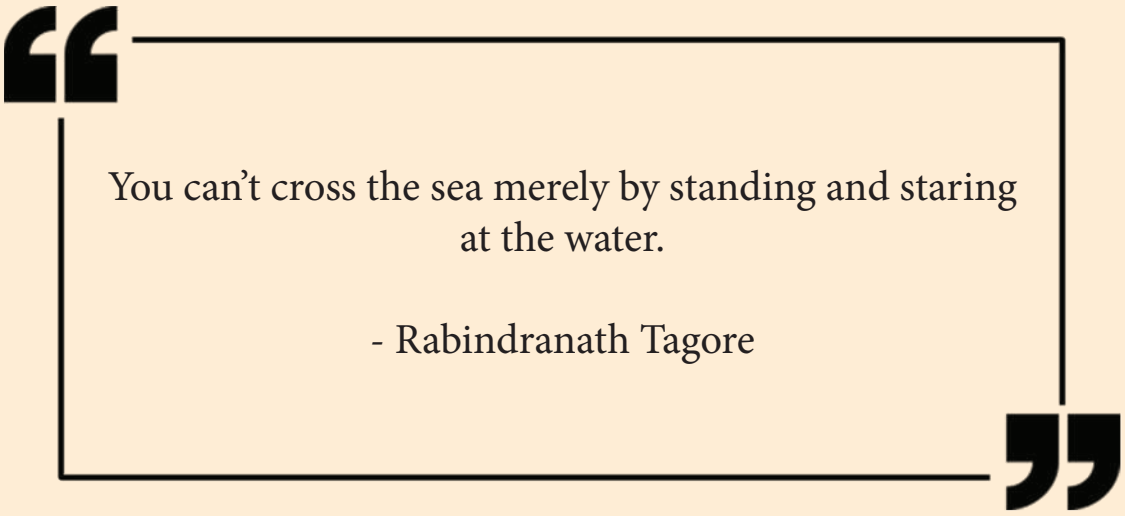
Despite such achievements, India continues to face many challenges in the development of the RE sector. One of the major difficulties faced by companies is constant setbacks in land acquisitions. This factor has slowed and delayed many RE projects in India. Mercom: a power-developer company faced this problem when they were expanding their solar initiatives. In addition to this, there is a lack of skilled manpower in the RE sector, due to which completion of projects takes longer than initially predicted, which in turn raises the cost of the project.

Establishing RE plants also comes with a lot of inconsistencies. Wind speeds cannot be forecasted reliably and there is uncertainty in predicting the electrical-energy output from solar panels as output can drop anytime, without warning, due to the presence of clouds. This unreliability deters the people from accepting it on a larger scale. Also, Biogas obtained from animal manure is seen to be highly unacceptable in urban society, as people see it as 'dirty fuel'. Because of such reasons, the installation of RE technologies remains low, despite heavy subsidies being provided by the government.

The Central Electricity Authority (CEA) estimates that by 2029-30, the share of renewable energy generation would increase from 18% to 44%. It is expected that by 2040, around 49% of the total electricity in India will be generated by RE, as more efficient batteries will be used to store electricity, which will further cut the solar energy cost by 66% as compared to the current cost.

The government aims to develop a 'Green City' in every state which would be powered through solar rooftop systems, solar parks and electric-mobility enabled public transport system. India's Jawaharlal Nehru National Solar Mission - which aims to establish India as a global leader in solar energy, is the largest and the most ambitious programme of its kind in the world. Also, the RE sector possesses the potential of creating a good deal of employment opportunities in the country, which makes investments in the sector even more

attractive. To conclude, India, even though it stands among the top five countries, has a long way to go to overcome the challenges that it faces to make India globally competitive in terms of renewable energy.



Digital India- Need of the Hour

- Sampurna Hajra*

To make India a digitally empowered nation, Govt of India launched **The Digital India** programme on 3rd July 2015. The dream was to ensure government services made available to every citizen electronically through internet networks and thereby making India a growing digital base of today's consumers. Through **Bharat Net** Government took the initiative to deliver various services such as e-health, e-education, and e-commerce to the remotest part of rural India. The country, thus, was already on a path of digital trajectory with a significant volume of digital transactions and contactless digital technology at the time since the world's worst pandemic emerged in the last year. Which was once a dream to us, became the need of the hour with the outbreak of the Covid-19 pandemic. The uncertainty regarding business trading affected the whole world. The outbreak of the pandemic and subsequent lockdown changed the basic sentiment and character of the business.

In India, the lockdown was declared in the last week of March'20 to restrict the spread of the disease. The country was not prepared for the unprecedented measure. The supply chain almost collapsed and people were afraid to go outside even for their basic needs. The situation compelled the use of contactless digital technology including online shopping, digital transactions, etc. Many service providers, such as banks, and other financial institutions like Insurance companies, have significantly reduced their offline operations and were asking their customers to use the online mode. From food ordering to grocery shopping, entertainment to business meetings everything shifted to the online mode. Business Community started remote working (work from home), shifted to virtual events &

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conferences. It was an evolution and reinvention of infrastructure which accelerated the path towards the digitalisation of the Indian economy. To provide customers with services of their choice and at their convenience, digital transformation was becoming the need of the hour. For survival, companies had no other option but to switch to digital platforms & adapt to several creative solutions meeting consumer expectations.

The digitalisation of the economy touched every aspect of life. Almost every Indian now has a digitally authenticated Aadhar identification number. The connection of Aadhar with bank accounts (scheme called Jan Dhan), and mobile phones, called as **Jandhan-Aadhar-Mobile [JAM]**, are the important initiative taken by Govt. Of India. As the part of Digital India Campaign, Direct Benefit Transfer (**DBT**) and JAM initiatives are the positive trajectory of the banking sector. **JAM** has provided a digital identity to Indian Citizens to access the banking service. When lockdown created a severe strain on the crores of common people, **JAM** played the role of a safety net and helped those who need immediate monetary aid through direct transfer of state benefits. A large amount of cash benefit has been distributed to citizens through the digital mode of payment.

For effective tracking and monitoring of the spread of COVID-19, India's National Informatics Centre created the **Aarogya Setu** app. Aarogya Setu and e-Office has tracked, traced and taken care of the covid patients. Aarogya Setu and other allied initiatives like the National e-Health Authority and new telemedicine guidelines are useful and vital move towards health facilities at this moment. The use of technology to fulfil the healthcare needs in remote areas of the country helps to formulate data-driven public policy on health. By using technology, the state governments are also managing the demand for essential medical equipment like ventilators, N95 masks and personal protective equipment (PPE). Many Indian states have taken the opportunity of technology expansion in their way. For example, Jharkhand Government is now using Collaborative Robots (Co-Bot) or India's tech hub Bengaluru is using drones to spray disinfectants, survey areas, monitor containment zones and make

public announcements.

The use of technology and innovative digital tools have touched the various spheres of life, be it access to services, livelihoods, or education. For example, vegetable vendors using aggregator apps or plying of e-rickshaws are now able to provide door-to-door services. Receiving consolidated payments every month provides a stable source of income also. Similarly, in education, many schools have shifted to online classrooms. Students with limited internet connectivity are also learning via mobile phones. The Indian government has promoted **DIKSHA**, a platform for school education. Education app like Biju's is gaining huge popularity among the student community. Jio, an all-services tech platform, from Reliance, has extended its service in various wings of the people and it is now the most popular brand in the remotest part of India.

The success of the Digital India mission depends on the well-defined infrastructure which includes the availability of high-speed internet connection for every rural village, easy access to common services centre within their locality and safe & secure cyberspace in the country. Digital education is crucial to make the digital revolution successful. How long the Government's effort to create interconnected digital infrastructure particularly in the financial sector through Digital Financial Service (DFS) in rural areas will be effective, depends on the affordability of smartphones on one hand and the availability of internet connectivity on the other. In addition, confidence and trust in technology are the most important- where we are lagging as a result cash transaction still a preferred mode of transaction for millions of Indians. Thus, awareness regarding the benefit of the digital economy is very crucial for the success of the "Digital India mission.

The Economics of the Fuel of the Future

- Adarsha Chattopadhyay*

Introduction

Let's look forward to a clean energy source that can change our future. Most commonly thoughts will turn towards solar panels or windmills. There is however a source of energy that is very much different. It has barely entered our life but experts believe it could bring a whole new revolution. That is none other than hydrogen. However, this source comes not without problem. Pure hydrogen does not exist on earth abundantly. Most of them are in the water or mixed with other hydrocarbons.

Thus the task is essentially to manufacture it.

How can we manufacture hydrogen?

What are its advantages?

Does it at all have a future based on the present technological development?

Answers to the above questions are what this article is about.

Economical Cost of Sources

To start hydrogen has been in use for many years. Main uses include it in the metallurgical industry, in refineries, electronics and in the production of ammonia. There is however a new use of hydrogen which has so far gone unnoticed- hydrogen as electrical energy. The idea has started gaining momentum with the invention of hydrogen

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fuel cells. It functions similarly to that of a lithium-ion battery cell, except instead of getting recharged by electricity it gets charged by liquid hydrogen.

That brings us to the main question: *How can we manufacture Hydrogen?*

The answer, well, it depends. Based on the source producing hydrogen it can of three types. They are:

1) Gray Hydrogen.
2) Blue Hydrogen.
3) Green Hydrogen.

Let us start with grey. Surely, the name itself does not invoke any feeling of cleanliness. That is correct because grey means simply the burning up of fossil fuels to produce hydrogen. It is not a clean source of energy. It is however the recent practice. Not to create electricity but mostly for industrial purposes. One of the biggest advantages of this process consists of is the low private cost of producing hydrogen (approximately 1 dollar per kilogram of hydrogen). The main question however is about the social cost.

Basically, to get hydrogen from a fossil fuel like coal a process called coal gasification is used. The process creates pollutants that can be taken care of in two ways. One, releasing it in the atmosphere with no regards to the climate. Two, storing the pollutant in an underground reservoir. The latter while at first seems to be a better option, does comes with its disadvantages. To begin with, the process is quite costly. Moreover, it runs the risk of leaks or creating seismic movements.

This is precisely why blue hydrogen is a much better alternative. Blue hydrogen refers to the process of burning natural gas to get blue flames, which contain hydrogen. In present times it is the most viable alternative. This is simply because the abundance of natural gas is too high. In many cases, oil-producing countries are forced to burn natural gas instead of exploiting it. For example, World Bank 2018

estimates show that almost 5.1 Billion Cubic Feet of Natural Gas was burned worldwide. If it had been used, it could have covered the energy consumption of France, Germany and Belgium! The problem however again lies in the social cost. The pollutant emissions of natural gas are also very harmful and not at all clean.

Thus so far clean hydrogen manufacturing has not been possible. However, there is still one source of hydrogen not covered yet. This is where green hydrogen comes into play.

The reality of the Future

So what exactly is green hydrogen? It refers to the process of breaking down water molecules into hydrogen and oxygen atoms with electrolysis. If the electricity for electrolysis comes from renewable energies then what we have in our hand is completely clean. The problem lies in the private cost of producing hydrogen in this manner. It would take approximately 3 to 7 dollars per kilogram of hydrogen produced with renewable.

Now the good news is the cost of having renewable energies is getting lower every day. With technological progress correctly done green hydrogen can very well become the fuel of the future. It is here precisely that the next main question arises: Does it at all have a future based on the present technological development?

The market for the Future Fuel

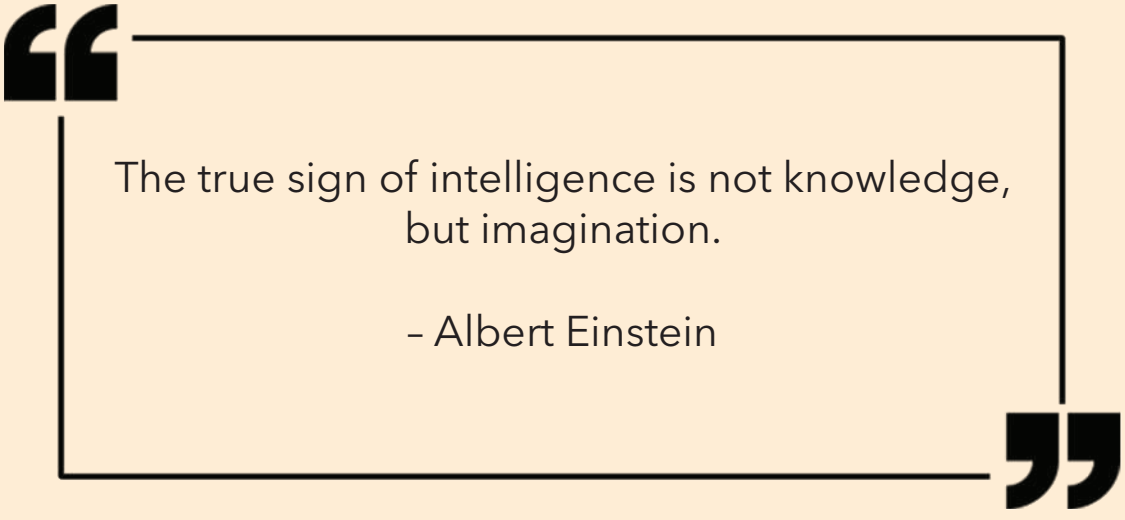
The answer again is it depends. To understand let's take the example of personal cars. The cost structure of manufacturing up hydrogen car with green hydrogen is twice that of an electric car. Moreover, hydrogen car does not have the benefit of the economics of scale. This is mostly due to the absence of the necessary infrastructures required before the personal car market could boom.

However, now let's talk about large transportation systems like buses, merchant ships and aeroplanes. So far applicability of electrical buses or aeroplanes has turned out to non-economical with limited usage. One of the most common reasons pointed out is that the battery size

needed to move a large transportation system is so big that it will take up most of the space. Hydrogen on the other hand can be fitted in an appropriately small container and get used for long-distance travel. This makes it economical as well providing the economics of scale from the existing infrastructure. Moreover, having a pollutant less air, water and road travel is an added incentive.

Now, at the very end, it should be noted that while hydrogen might soon make a place in the future market it has a very important use right now. That is instead of using it for electricity purposes it can be used to store renewable energy itself. Thus, hydrogen can cover up a major limitation of renewable energy namely the temporary nature of the sources of renewable energy. For example, winds are not always strong enough to generate adequate energy. However, if hydrogen can store the surplus energy, then it allows for a continuous supply of renewable energy helping to develop another source of clean energy.

Therefore, it can be easily said that hydrogen is soon going to be a game-changer.



RESEARCH PAPERS

Old Vs New : Education Reform Bill 2020

- Nandini Sen[1], Ayushmita Ghosal[2] & Sayoni Sen[3]

Introduction

This paper empirically investigates the differences between the old and the new education reform bill in India. It further aims to pinpoint specific aspects of the reform bill and how it is important in determining the country's economic growth. The NEP 2020 brings about a radical change in the system of education that was introduced in 1968, by the **Kothari Commission**. It also attempts to analytically test the mechanism through which educational institutions impact economic performance. The tools employed to undertake this research are, namely gross enrolment ratios, student-faculty ratios, literacy rates, and gender ratios. The policies formulated in 1986 did not account for the competition that came along with the beginning of globalization a few years later in 1991; however, the NEP 2020 is an attempt to create a balance between local and global human resources. One of the major differences between these two policies is that the new policy poses no rigid separations between the arts and sciences, students will be allowed to choose their desired subject combination. The NEP incorporates an extension of the **Right to Education Act** (2009) including children of ages **3 to 18**. On the other hand, under the previous bill, it was from ages **6 to 14**. Learning from an early age will lead to the betterment of the quality of human resources and provides a progressive outlook to students. The new reform is set to replace the 10+2 schooling system in India with a new 5+3+3+4 system. Furthermore, the public spending on

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1,2 & 3: Students of Economics (Honours), Semester-II, The Heritage College)

education is to be increased from 4% to 6%; however, the goal of spending 6 % of the GDP on education was first articulated in the year 1948 itself. The comparisons mentioned in this paper highlight the possibilities of the change in human resources development in the country.

Literature Review

1. Research works undertaken in 1973 by Malini Gopalakrishnan, stated that the Indian university, as it existed then, was essentially a creation of the British and dated back to the nineteenth century. English was the language of instruction at the university level before independence. The first universities were established in 1857 in the Presidency towns of Calcutta, Bombay, and Madras. Modelled at the University of London these were affiliating universities. Since independence in 1947, several commissions have been established to study the state of the universities in India. The goal was to revamp the whole system and to make it relevant to the needs of an emerging nation like India. The Indian Parliament created the University Grants Commission (UGC) in 1956.

2. An official analysis done by the GOI stated that the National Policy of Education, 1986 stressed the provisions for fellowships of the poor, imparting adult education, reorientation of the entire framework to encourage gender equality, including hiring teachers from disadvantaged communities, the physically and mentally handicapped, and for areas that need special attention, as well as the creation of new schools and colleges.

3. An analysis conducted by Aithal, P. S., & Aithal, Shubhrajyotsna (2020) states that higher education is an important aspect in deciding the economy, social status, technology adoption, and healthy human behaviour in every country. The education department of the country government is responsible for improving GER so that every citizen of the country has access to higher education opportunities. National

Education Policy of India 2020 is marching towards achieving such objectives by making innovative policies to improve the quality, attractiveness, affordability, and increasing the supply by opening up and allowing the private sector access to higher education while maintaining strict quality controls in all higher education institutions.

Methodology

1. This study is based particularly on secondary data sources which have been collected from the research works undertaken by different researchers in this field as well as from the reports published by The World Economic Forum, Govt. of India, Ministry of Human Resource Development, Dept. of School Education and Literacy, New Delhi and UNESCO (in human resource development).
2. Specific analysis has been done on the following indicators-
    a. Literacy rate
    b. Gross enrolment ratio
    c. Gender parity ratio
    d. Dropout rates
    e. Student-faculty ratio
    f. Expected/mean years of schooling
3. Also, the statistics related to the accessibility to the internet in both urban and rural regions have been provided to highlight the digital divide throughout the country.

Analysis

The National Policy on Education (NEP) is a policy devised by the Indian government to encourage education among the Indian people. It includes elementary to college education in both rural and urban areas.

Post-Independence, India has had three education policies. The first policy was formulated in 1968, by the Kothari Commission, in which major emphasis was on compulsory education for children up to the age of 14. Next, the second NEP was introduced in 1986. The major emphasis of the second NEP was to remove the disparity between various social groups. However, the 1986 policy did not account for the competitive global landscape, which came with the beginning of the globalization of the Indian economy post-1991 reforms. The new education policy in 2020 arrived 34 years later and is all set to change the existing academic system of India to bring it at par with the international standard of academics. The NEP is expected to be operational by 2040, according to the Indian government. Till the targeted year, the key points of the plan are to be implemented one by one.

According to the Government, the NEP 2020 is formulated after having considered lakhs and lakhs of suggestions from different levels of administration in the country. It will bring about structural change in the education system which aims to make India the global knowledge superpower ensuring equality and inclusion. The NEP 2020 aims to increase state expenditure on education from 4.6% to 6% of the GDP as soon as possible, however, it should be noted the goal of 6% of GDP to be spent on education was first articulated in 1968, but unfortunately, it was never achieved.

According to NEP 2020, the 5+3+3+4 structure will replace the existing 10+2 structure at the school level. At the preschool level, The Anganwadis or playschools are going to become mainstream and will not be on the 'fringe' of the education system. The government, however, is facing a massive budget gap to undertake all these

initiatives.

Following are some of the recent initiatives taken by the Government of India (GOI):

1. In May 2020, the Government launched PM eVIDYA, a program for multi-mode access to digital online education.

2. The government allocated INR 59,845 crore for the Department of School Education and Literacy in the Union Budget 2020-21.

3. India announced Revitalizing Infrastructure and Systems in Education (RISE) by 2022 with a proposed outlay of INR 3,000 crore.

4. Under Union Budget 2020-21, the government proposed apprenticeship embedded degree/ diploma courses by March 2021 in about 150 higher educational institutions.

5. Around two crore candidates completed training in 254,897 registered training centres under the Pradhan Mantri Gramin Digital SaksharataAbhiyan (PMGDISHA), as of February 2020.

6. India promoted a new scheme 'Study in India' to attract foreign students to higher educational institutions

7. With an outlay of INR 6,655 crore, the government approved Skills Acquisition and Knowledge Awareness for Livelihood Promotion (SANKALP) and Skill Strengthening for Industrial Value Enhancement (STRIVE) in a bid to boost the Skill India Mission.

8. The GOI initiated the Ek Bharat Shreshtha Bharat (EBSB) campaign to increase engagement between states, union territories, central ministries, educational institutions, and the public.

According to this policy, an academic bank of credit will be set up, the credits earned by the students can be stored here and when the final degree gets completed these can be counted, so these changes are very positive and follow a more western style of education. If implemented properly, this will lead to an increase in the quality and percentage of the human resource population in the country.

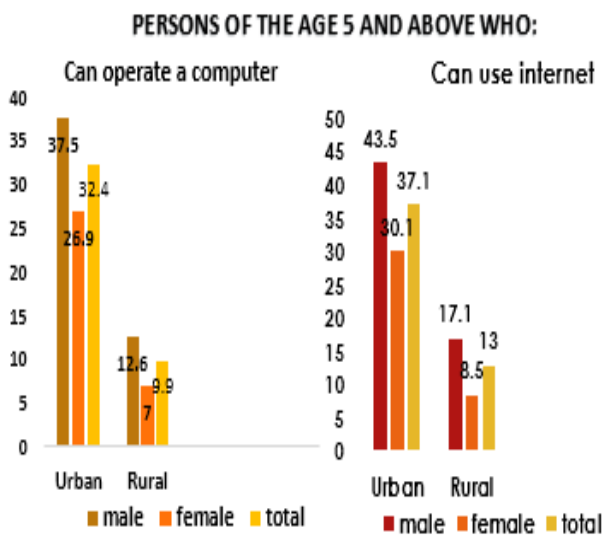
FINDINGS

PRIMARY LEVEL (I-V), 2017-2018

State	Dropout rate	Boys	Girls
Assam	10.1	11.2	8.9
Arunachal Pradesh	8.1	10	6.1
Mizoram	8	8.6	7.4
UP	7.2	7.2	7.1
Tamil Nadu	5.9	5.9	6

SECONDARY LEVEL (IX-X), 2017-2018

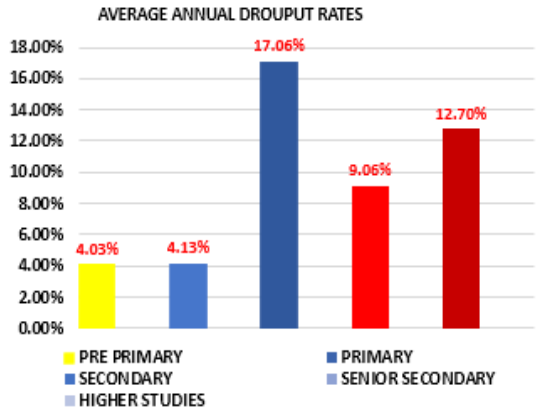
State	Dropout rate	Boys	Girls
Assam	33.7	32.1	35.2
Bihar	32	30.3	33.7
Odisha	28.3	28.7	27.8
Tripura	27.2	27.1	27.3
Karnataka	24.3	26.4	21.9

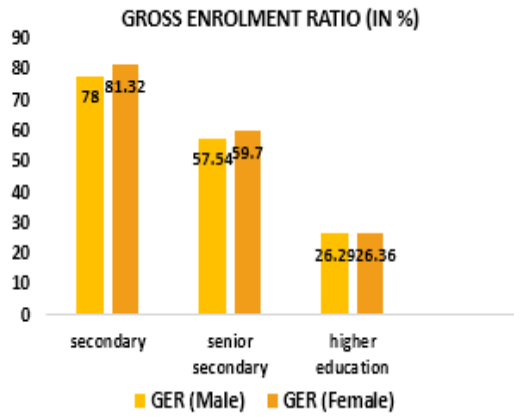


1. According to the new policy, the Govt. aims to increase the GER for primary education from 50% to 100% and for secondary education from 25% to 50%.

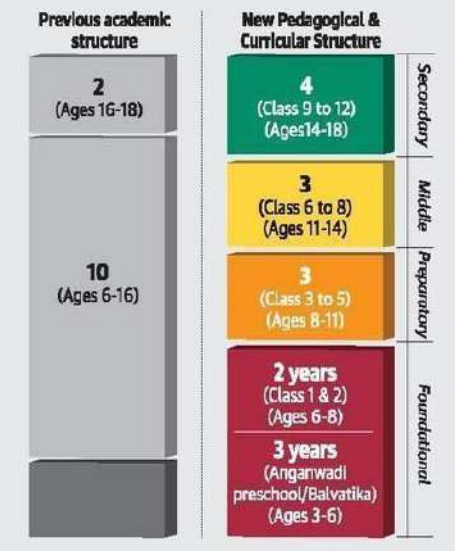
Keeping that goal in mind we compare it to another goal of this very policy of introducing **coding** from 6th grade onwards, however for students to learn how to code, technological infrastructure along with a skilled staff is of utmost importance, even so looking at the graphs in the study we can deduce that accessibility to the internet or even computers in rural areas is massively behind compared to urban areas.

Therefore, to keep in check this divide, a huge amount of funds would have to be invested by the schools into this venture which may hike the fees to balance the spending, and in turn may contradict the goal of achieving said Gross Enrolment Ratio, as students might drop out due to financial constraints. We find that the case of digital learning may prove to be a hindrance to the goal of achieving a higher GER.





2. The dropout rate is 17.06% being the highest at the secondary level followed by 12.70% in higher studies, to counter this high dropout the NEP introduced a policy wherein students at the undergraduate level can leave a course midway and continue as and when it is affordable for them because lack of affordability is one of the major reasons for the high dropout rate.



3. According to NEP 2020 the 5+3+3+4 structure will replace the existing 10+2 structure. Anganwadi and playschools will no longer be on the periphery of the educational system but will become mainstream. To focus on the academic structure, this policy puts a greater emphasis on the Anganwadi to promote early learning however Anganwadi remain highly underfunded, the training of the Anganwadi workers will take around 16 to 20 lakhs, the cabinet has already approved projects under this and a part of the funding will be coming from the World Bank.90% of the brain development happens before kindergarten, which is why the Anganwadi system is being given so much importance which will help to develop a child's brain at a very young age. However, the government cannot fund these expenses.

CONCLUSION

1. Increasing the education budget to 6% of GDP has been a dream since 1968 and the NEP2020 gives promising hope in finally achieving this goal. However, the question lies in whether it will balance out the lopsided allocation of resources in higher education. This is because the bulk of spend in higher education goes to only a few institutions such as IITs and central universities and a few research centres.
2. The New Education Policy will give importance to students' practical knowledge instead of just pushing them towards rote learning. It will assist students in developing a scientific mindset from an early age. The NEP aims to make it easier to establish modern, higher-quality higher educational institutions that meet international standards. Many students who are unable to go abroad for a variety of reasons will be able to experience it and gain global exposure thanks to NEP, which will make it easier for international colleges to establish campuses here. This will promote value-based education.

3. Furthermore, raising school fees will indirectly add to the existing challenge of high drop-out rates, especially in rural areas where the GER is already very low As a result, more funding and infrastructure shall be required in each aspect of equitable learning. Additionally, the government has a great responsibility in providing effective counselling to parents and students in rural areas which will be needed to make them realize the importance of education in the 21st century.
4. In its implementation, the state and the central government must work together. Discordant voices have already been heard from many states. Therein lies the big challenge.
5. Hence, the NEP2020 is a big step towards achieving that goal and bringing India on the global frontier. This policy, if implemented correctly, can be one of the most effective policies in the field of education.

Limitations of The Research Paper

The empirical results reported herein should be considered in the light of some limitations:

1. The findings and analysis are based on observational studies, they are therefore subject to biases that may or may not affect our model estimates or findings.
2. One of the major limitations, worth mentioning is the lack of previous literature and research on this topic as this change is still being formulated, and there is a need for further development in this area of study.
3. Also, limited access to primary data is another shortcoming of this study and hence it is mainly based on secondary data on account of the lack of field experience of the researchers. The collected data ranges from 2017-18 owing to the lack of availability of recent data on reliable sources.

Nonetheless, these results must be interpreted with caution and these limitations must be borne in mind.

References

This study has been conducted using various journals and research papers written by prestigious institutions and researchers, some of which we have listed below-

1. Higher education in post-independent India (1947-1970): a critical evaluation in terms of selected criteria of effectiveness by MaliniGopalakrishnan A thesis submitted to the Graduate Faculty in partial fulfilment of the requirements for the degree of DOCTOR OF EDUCATION Montana State University © Copyright by MaliniGopalakrishnan (1973)
2. National Education Policy 2020, Ministry of Human Resource Development, Govt. of India
3. Ms Sujatha Ramesh, Dr K. Natarajan (2019) "New Education Policy of India: A Comparative
4. Study with the Education System of USA", International Journal of Humanities and Social Science Invention (IJHSSI)
5. Articles on the New Education Policy such as The Hindustan Times, Education Times, Times of India, Economic Times, Indianexpress, India today
6. Aithal, P. S., &Aithal, Shubhrajyotsna (2020). Analysis of the Indian National Education Policy 2020 towards Achieving its Objectives. International Journal of Management, Technology, and Social Sciences (IJMTS).

Digital Divide in India

- Rishabh Mukherjee[1] & Shivam Maheshwari[2]

Abstract

This paper attempts to concentrate on the various facets of the digital divide and measure its impact, primarily on the education sector. First, causes leading to such a divide are identified. Then, based on the data obtained by the NSSO, the figures of different Indian states are compared. The urban-rural divide and the loopholes in their implementation are discussed. The paper reveals that obstacles such as illiteracy, lack of infrastructure, and investment in rural areas must be tackled if India is to diminish the gap of the digital divide.

Keywords:

Digital Divide, Regional Disparity, Information, and Communication Technology (ICT).

1. Introduction

In recent years, the notion of the 'digital divide' has been widely researched and has attracted much debate and speculation for its social, economic, and political consequences. Here in the paper, the primary aim is to understand and measure the impact of the Digital Divide on India's education sector and the subsequent impact it will have on the labour force in the future. A digital divide can be referred to as any uneven distribution in the access to, use of, or impact of information and communications technologies between

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any number of distinct groups, which can be defined based on social, geographical, or geopolitical criteria, or otherwise.

India, the largest democracy and the second-most populous nation in the world having a population of more than 1.3 billion people, out of which approximately 313 million people are uneducated and only a paltry percentage of the people have access to the internet. But surprisingly, despite such demoralizing numbers, India presently serves as one of the worlds' leading IT hubs. Though superficially, this might seem to be paradoxical, in reality, there is a lot more to it. Digitalization and Information and Communication Technology (ICT) serve as the basis of modern society. The development of ICTs and the rapid pace of digitalization have necessitated multiple social, economic, and environmental changes globally.

Though to a developing economy like India, this process of shift is tedious and troublesome, it can be safely said that it is necessary and the only way forward. The digital divide, if not checked for, in its nascent stages, will have large-scale economic implications. It will widen the gap between the rich and the poor, the educated and the uneducated, and shall drastically deteriorate the productivity and the efficiency of the labour force in the future.

Moreover, with the outbreak of the Covid-19 pandemic in 2020, the digital divide, especially in the Indian education sector has deepened to a great extent. This came at a time when the country was expected to take off to its next phase in the digitalization process. India has the world's second-largest schooling system, after China. A total of 320 million learners in India have been adversely affected and transitioned to the e-learning industry. Though educational institutions had to shut down to avoid community transmission of the virus, the prolonged closure and the subsequent shift in the mode of teaching has had a detrimental effect on the students – especially the most vulnerable ones – belonging to the socially and economically downtrodden class (World Economic Forum - UNICEF).

2. Literature Review

Amidst the given circumstances, technology has turned out to be the most feasible and one of the best possible solutions to most of the sectors across the world. Its efficacy and efficient nature has always proven to make the world easier for everyone. We believe that we are not wrong when we say that this was the only market whose demand surged to more than double its size and found the urgent need to increase its capacity. However, not exactly everyone was fortunate enough to reap the benefit of technology. This is where the digital divide came into play. Amongst all the sectors, we believe that education flow was majorly distorted due to the digital divide. As per the Indian Student Exclusive QS IGAUGE's Report (titled 'Covid-19: A Wake-up Call for Telecom Service Providers'), the infrastructure in terms of technology in India has not achieved a state of quality to ensure sound delivery of online classes to students across the country. According to the World Bank (2020), the pre-existing learning crisis with the crisis of school closures in more than 160 countries as of March 2020 is expected to have short-term losses of learning and long-term losses in human capital, and diminished economic opportunities.

With educational institutions getting shutdown orders to prevent the spread of the coronavirus and shifting of the education culture to a digital platform, the urgency to eradicate this digital accessibility gap grew even more. However, our efforts towards this concern were not satisfactory. A report by Oxfam India (September 2020) states that around 27 crores students were badly affected by the closure of schools and almost 84% of teachers reported facing challenges in delivering education digitally (concerns ranging from internet connectivity, data expenses to the impairment of health of the teachers). Estimates show that continued dependence on education on digital platforms will lead digitally deprived students (mainly from disadvantaged backgrounds) to lose almost 40 % of their previous year's teaching (Quinn &Polikoff, 2017). According to India's National Sample Survey Organization (NSSO), there is a need

for investment in transportation, power, and internet access to create more employment for an estimated population of 156 million Indian rural households.

Synoptically our paper strives to critically examine the impact of the measures already taken to minimize this issue (like Digital India 2016, eNAM, Digital India Land Records Modernisation Programme) and we have also laid our point of view towards the same mission.

3. Causes Of The Digital Divide

Information and communication technologies (ICTs) are turning out to be the new normal. With situations getting worse day by day, ICTs are making their way into being our next best alternative. However, countries across the world are finding it difficult to reap equal benefits of ICTs. Moreover, the problem of the intra-national digital divide (which refers to inequality across the regions, sectors and sections of the society in terms of their ICTs access) is also leaping over the past couple of years (NSSO, 2018). In the case of India, there persists a huge urban-rural digital divide which is shown by the indicators of mobile users and internet users. Some of the major causes of the divide are:

(a) Internet Divide: It refers to the gap in access to internet usability for any given population. In India, almost 70% of the total internet users come from top cities (like Mumbai, Delhi, Bangalore, Kolkata, and Pune) and the rest 30% access comes from other areas. The disparity between urban and rural areas is very high.

(b) Poverty: This is one of the major reasons for such an enormous gap between urban and rural internet users. People in the rural areas find themselves trapped into a vicious circle of poverty and hence they cannot afford technology even if they have access to internet connectivity.

(c) Electrification: Electricity is one of the major resources in creating a seamless environment of internet connectivity and usage. Rural India has low coverage of electricity as compared to the urban areas (Government of India (2017-18), Statistical Yearbook of India).

(d) Education: Majorly affected area when it comes to the digital divide. Not to mention, but COVID-19 and lockdowns all across the world led to a steep surge in demand for electronics and the internet. However, the vulnerable section of our society continues to find itself in a deeper hole. Lack of proper connectivity, inability to afford data (due to price increase), and having no internet connection at all are some of the major challenges laid down by over 75% of the parents across the country (Oxfam, September 2020). Many areas of Bihar and Jharkhand have reported an absolute shutdown of education during the lockdown. This will ultimately create a knowledge gap, lack of proper skills, and involuntary unemployment, thereby creating a hindrance in our country's growth.

4. Methodology And Source Of Data

To study the extent to which the divide is present in our country, we will analyze the data from NSSO Report No. 585 on **Household Social Consumption on Education in India (75th round).**

From chapter seven of report no. 585, we try to decipher the disparity in inaccessibility of internet and computer facilities among the rural and urban areas of the different states in our country. Accessibility to digital infrastructure is defined as households having possession of

Computers, laptops, tablets, and similar devices. Along with it, we also study how males and females fare when it comes to the ability to use computers and the internet. The ability to use digital

devices(computer, to be precise) refers to the ability of an individual to perform basic functions on a computer such as accessing files, using Microsoft applications, etc, whereas the ability to use the internet refers to being able to use internet browser for navigating websites, sending and receiving e-mail and social networking applications, etc.

5. Analysis Of Data

Table 1 shows the percentage of households with computer and internet facial facilities in different states

State	rural		urban		rural+urban	
	computer	internet facility	computer	internet facility	computer	internet facility
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Andhra Pradesh	1.5	10.4	11.6	29.5	4.8	16.6
Assam	3.7	12.1	30.8	46.9	7.5	17.0
Bihar	2.7	12.5	20.0	38.6	4.6	15.4
Chhattisgarh	3.2	10.6	22.0	34.6	6.9	15.2
Delhi			34.7	55.8	34.9	55.7
Gujarat	4.4	21.1	20.1	49.1	11.2	33.2
Haryana	5.9	37.1	29.5	55.4	14.7	43.9
Himachal Pradesh	10.5	48.6	28.3	70.6	12.9	51.5
Jammu & Kashmir	3.5	28.7	16.0	57.7	6.6	35.8
Jharkhand	1.3	11.9	15.6	40.2	4.4	18.0
Karnataka	2.0	8.3	22.9	33.5	10.7	18.8
Kerala	20.1	46.9	27.5	56.4	23.5	51.3
Madhya Pradesh	2.3	9.7	17.2	35.4	6.1	16.3
Maharashtra	3.3	18.5	27.4	52.0	14.3	33.7
Odisha	1.8	5.8	17.2	31.2	4.3	10.0
Punjab	9.4	39.4	26.7	57.1	16.2	46.4
Rajasthan	6.4	18.5	26.6	49.9	11.7	26.7
Tamil Nadu	11.6	14.4	24.7	24.8	18.1	19.6
Telangana	1.6	9.9	17.6	41.9	9.1	24.9
Uttarakhand	7.0	35.2	32.5	64.3	14.3	43.5
Uttar Pradesh	4.0	11.6	22.3	41.0	8.2	18.4
West Bengal	3.3	7.9	23.0	36.0	9.4	16.5
all-India	**4.4**	**14.9**	**23.4**	**42.0**	**10.7**	**23.8**

Note: Figures for rural Delhi is not presented separately. However, 'rural + urban' for Delhi includes, 'rural' also

Table 1: (Source: NSSO data on social consumption of education)

From the above table, we see that only about 10.7% of the Indian

households have been observed to have possessed computers, whereas the percentage of households having internet facilities in our country also stood at a meagre 23.8%. Delving into the data for states, we find that even Kerala, the state with the highest literacy rate in the country, does not have impressive numbers with only 23.5% of households having computers. Odisha fared worst in this regard i.e. 4.6% of households had computers. These figures correspond to both the urban and rural areas. The more worrying issue lies in the figures of computer and internet availability in the rural areas of the states: the figures were 2.7%, 4.4%, 3.3%, and 1.6% for the states of Bihar, Gujarat, Maharashtra, and Telangana. The figures for most other states lie in and around these numbers. The numbers for internet facility look a little bit better, overall (rural + urban), all the states had double-digit percentages of households with internet facilities, but the percentages are not good enough, other than Delhi, Kerala, Himachal Pradesh, Punjab, and Uttarakhand that have figures around 50%. These scanty percentages post a scary picture in front of us, that how less access to digital infrastructure poses a threat to prospects of the students who do not belong to these percentages. They could well be at a disadvantage of not being able to use these facilities, they will be left behind the race of education and employability too. This low access to the internet also opposes the present-day myth that India is empowered with the magic stick of internet access.

Table 2(on the next page) shows the percentage of persons of age 5 years and above who can operate a computer, able to use the internet for males and females

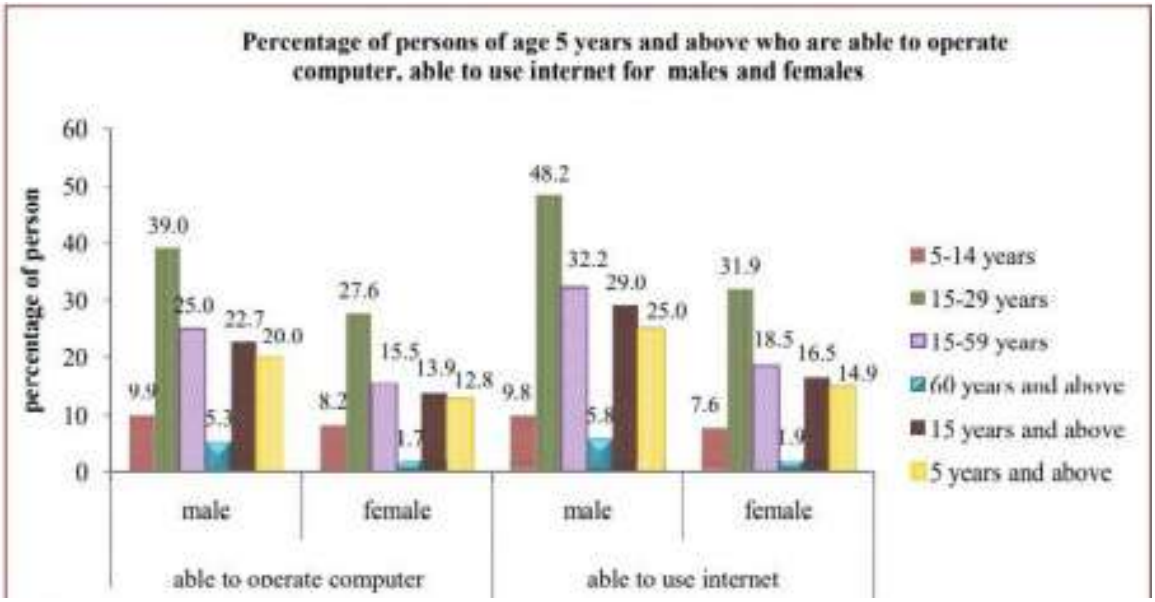

Table 2: (Source: NSSO data on social consumption of education)

What we can infer from the above compilation of information is not very good either. Females were way behind males when it came to the ability to use a computer and the internet. For our purpose, we are mostly concerned with people aged 15-29 years because they are the ones who will be on the verge of education completion and entering phases of employment. Only 39% of the males and 27.6% of the females (of the age category under consideration) could perform basic functions on a computer. Again, the study of the percentage of people who could make use of some basic and productive uses of the internet facility stood at 48.2% for males and only 31.9% for females.

It must be noted from here that the all-around ingress to digital infrastructure is paltry in rural areas in most states, which mainly creates a huge gap in online education reach to those people; this will further create issues in ways we do not always pay attention to i.e. if they are not taught how to use the internet and digital devices, they will not be able to use the online services available like e-banking and most importantly, they won't be able to be part of the growing part of the society that is taking to online education, especially during today's time. All this plays the role of fuel to the growing fire of the

digital divide in our society.

6. Implications Of The Digital Divide

Though the consequences of the digital divide are deep and vastly spread, a few vital sectors have to bear the major brunt of the problem. Three such key facets have been identified and discussed vividly.

1. **Social Impact**: The raging disparities inability (and accessibility) to fully utilize the huge potential of the internet and computers creates deep segregation in the society. Internet availability offers people access to a broader range of opportunities thereby concocting a social divide between those who are enriched and those who are deficient. Such segregation holds the potential to raise social conflicts in the communities where the affluent can possess computers and access the internet while the impoverished ones are kept at bay. Efforts to bridge this gap initiated at a personal level through unacceptable activities such as theft have led to the disruption of harmony in society.

2. **Impact on education**: This component, among the many effects of the digital divide, seems to be the most dangerous. The gradual shift (though not even half) of education to online mode to complement offline learning is causing much harm. The phenomenon has paced up during this pandemic situation, wherein virtually the system of education is working online: from classes to tests. Millions of children are being left out of this transition. This further hampers their education because they could well be left behind in acquiring relevant knowledge which their peers are getting, thereby, reducing their chances of being equally capable to the other students when the time comes to start their careers. We can call this a **hindrance in Human-capital formation** i.e. the digital rift in education is putting a big barrier in pooling out a better, more employable, more skilled labour force. Human capital is both the physical and intellectual

capacities of an individual as well as the experiences that they harness. The digital divide will affect human capital as lack of access to technology will lead to a rise in unemployment. Not everyone will have the resources to gain skills required for employment as well as being aware of employment opportunities, and thus it also puts a question mark on the growth equality that we want. The inadequacy of ICT equipment coupled with the inaccessibility has made the already reeling education setup in the developing countries even more ineffective. The problem is more in rural areas. Talking about India, bucolic India faces information sparseness due to the digital divide. It works well in bolstering the threatening cycle of poverty, deprivation, and backwardness.

3. **Impact on business**: Though the divide in access to ICTs has hit several industries badly, its impact on business - especially the cottage industries has been pretty unfortunate. The MSME (Micro, Small, and Medium Enterprises) sector has been severely hit and the conditions have deteriorated after the rapid digitalization drive.

Most of the entrepreneurs in the rural parts of the country are skilled but uneducated. So, despite knowing their area of expertise well, most of them do not have either access or the required knowledge to operate their business digitally. A report published by Statistical Research Department in December 2020 estimated that over 110 million Indians were employed in the MSME sector. Even for the urban industries, the complexities of the various government regulations and filing of GST and other taxes, along with the changed demands of the consumers, have necessitated the entrepreneurs to shift their business operations to a more digitally oriented process. Though this has caused certain operational problems for such industries in the short run, the businessmen realize that this is the way forward.

7. Conclusion

From our study, we see that with the increasing trend of 'digitalization'

in the world and the sudden outbreak of the Covid-19 pandemic, the problem of the Digital Divide is growing exponentially. The gap between the 'haves' and 'have nots' is widening and if not mitigated urgently, this will have long-term social, economic, and environmental implications.

Digital Divide will increase the dropout rate from educational institutes further, which will result in a lack of development of skills and knowledge among people and hence, will hamper sustainable education- because this digital divide will lead to higher drop-out rates in schools and colleges and if it continues this way, then the education system itself will face trouble in existing, thereby acting as a **roadblock to 'sustainable human development. This will have a detrimental impact on the future labour force and will give India a competitive disadvantage in the global market.**

To avoid such problems, obstacles such as illiteracy, lack of skills, lack of infrastructure, and investment in rural areas must be tackled if India is to diminish the gap caused by the digital divide. Moreover, the Internet penetration is not deep enough. The government must put a thrust towards connectivity provision and core technologies creation, even in the remotest corners of the country, to mitigate the problem. Only if more investments are made in this regard, and schemes are properly implemented, will India overcome the crisis.

References

1. Status Report – Government and Private Schools during Covid-19 by Oxfam India – September 2020 (Ankit Vyas, Binod Sinha, Pratyush Prakash, Santosh Patra, Prakash Gardia).

2. Access and Inclusivity – Digital Divide in Online Education – EPW

– VOL LV No.36, 2020(Bheemeshwar Reddy, R Vaidehi, S. Jose)

3. www.digitaldividecouncil.com

4. What is so wrong with online teaching? – EPW – VOL LV No. 23 – June 2020 (Soumyajit Bhattacharya)

5. Household Data on Social Consumption of Education – NSSO – 2017-18 (75TH ROUND)

6. UNESCO Report 2010 – School Dropout: Patterns, Causes, Changes and Policies (Ricardo Sabates, Kwame Akyeampong, Jo Westbrook, Frances Hunt)

7. Eliminating the factors of School dropouts and Education Sustainability (BasavarajBiradar and Dr S.Y. Swadi)

8. Digital Divide in India: Measurement, Determinants, and Policy for Addressing the Challenges in Bridging the Digital Divide (Dr Sumanjeet Singh)

9. The Digital Divide in Indian Country (Donna Feir, Richard M. Todd, Kent Weyrauch)

10. Innovations in Education: The Education Impact of the Digital Divide (Prichard Committee)

11. Article titled 'Digital Divide in India's Education' on The Statesman – June 2020 (Smriti Mishra and NandLal Mishra)

12. How Technology is transforming the lives of India's farmers - World Economic Forum, 02 October 2017 (Uma Lele)

Old Vs New: Education Reform Bill, 2020

- Eram Feroz[1] & Shaoni Sardar[2]

Abstract: The National Education Policy 2020 aims to address the many growing developmental imperatives of India. The implementation of the earlier policies on education concentrated mainly on issues of access as well as equity. The unfinished agenda of the NEP 1986/92 is appropriately dealt with in the new policy. A significant development since the last policy 1986/92 has been the Right of Children to Compulsory Free Education Act 2009, which laid down the legal foundations for attaining universal elementary education. The NEP 2020 envisions an education system rooted in Indian ethos that contributes directly to transforming India sustainably into an equitable and vibrant knowledge society by providing high-quality education to all; thereby, making India a global knowledge superpower. The policy aims to universalize elementary to secondary education with a 100% Gross Enrolment Ratio by 2030. Promoting multi-disciplinary education is likely to invite foreign education players to India to operate independently, higher education with flexibility in the choices of subjects, multiple entries, and exit points for incomplete courses. Their credits will be transferred through an academic bank of credits, which is the main difference between both policies. Major reforms of NEP include schooling up to Class 5 in mother language or regional language, lessening the stakes of board examinations, letting external campuses set up in India, a single controller for higher education institutes excluding law and medical colleges, and common entrance tests for universities. Our presentation would aim to point out the differences between the old and the new educational policies and ably analyze their effects.

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Introduction

The **National Policy on Education (NPE)** is a policy created by the Government of India to encourage and regulate education in India. The policy includes easy learning to higher education in both rural and urban India. The first NPE was enacted by the Government of India by Prime Minister Indira Gandhi in 1968, the second by Prime Minister Rajiv Gandhi in1986, and the third by Prime Minister Narendra Modi in 2020.

The National Policy on Education 1986 led by Rajiv Gandhi mainly focuses on removing disparities and equalizing educational opportunity, especially for Indian women, Schedule caste, and Scheduled Tribes communities. To achieve such a social integration, the policy called for expanding scholarships, adult education, recruiting more teachers from the SCs, incentives for poor families to send their children to school regularly, development of institutions that need new institutions, and providing housing and services. The policy expanded the open university system with Indira Gandhi National Open University, which had been created in 1987. The policy also called for the establishment of the "rural university" standard, based on the idea of Mahatma Gandhi, to encourage economic and social development at the grassroots level in rural India.The1986 education policy expected to spend 6% of GDP on education. On the other hand, The National Education Policy 2020 attempts to make important reforms in education. The policy objectives are at the universal adoption of education, beginning from pre-school to secondary level with a 100%gross enrolment ratio (GER) in school education by 2030. The NEP 2020 will encourage skill-based learning and enhance the practical skills of the students.

Literature Review

In an article by Dr Vaneeta Aggarwal published by The Hindustan Times, she has stated how the NEP 2020 has a few salient features, aiming towards a self-reliant nation, being one of them, also states

how Article 7.12 talks if constituting Samamjik Chetna Kendra which will create a socially cohesive environment at school.

The article by The Wire Analysis (3 July 2020) stresses the idea that a "multiple entry and exit" policy might bring down the count of dropouts. It also emphasizes the thought- " while speaking about 6% funding, the union government doesn't mention whether it will release the funds from its pocket or generate it from private enterprises".

An article published by India Today (14th August 2020) states a few responses to why the new policy may rejoice and why it should not be rejoiced because of the difficulties it might face during its implementation about the recruitment of teachers with the proper degrees and increasing education's contribution to GDP.

Finally, NEP 2020 aims towards a prosperous future for our country with its own set of challenges.

Empirical Study:

Objectives

To study the differences brought about in secondary education and higher education:

The NEP 2020 has replaced the 10+2 structure of the school curricular with a 5+3+3+4 structure. This will include 12 years of schooling and 3 years of Anganwadi and pre-schooling. The new provision includes teaching up to class 5 in mother tongue or regional language, lowering the stakes of board exams. There will be no rigid separations between arts and science, between curricular and extracurricular activities, between vocational and academic streams. The National Testing Agency (NTA) will carry out the entry examinations for admissions to colleges across the country. The NTA already conducts the all-India engineering entrance exam and

others. Under the NEP 2020, the entrance exam to be carried out by the NTA for entry into universities and colleges will be optional.

To study the differences brought about in teacher education and technology in education.:

To become a teacher, a 4-year Bachelor of Education will be the minimum requirement needed by 2030.Mandatory certified education in teaching pedagogy during PhD enrolment for aspiring professors. Teachers will also be given local, regional, state, national, and international seminars as well as online teacher growth segments. The program of digital India and the present crisis of pandemics has been the motivation behind the need and the establishment of digital libraries, digital content, digital teaching, and classrooms.

Several features have been introduced in NEP 2020, however, the enactment will have its challenge in terms of funding, best in class resources, and enormous scalable performance.

The major changes brought in the credit scoring system are the multiple entries and exit points for incomplete courses:

By the introduction of this new clause, students can take a break from the undergraduate course and return within a certain period without losing the credits received during the earlier session. A certificate after completing 1 year in a discipline or field including vocational and professional areas, or a diploma after 2 years of study, or a bachelor's degree after a 3-year program. "The 4-year multidisciplinary bachelor's program, however, shall be the preferred option", the NEP 2020 adds. Flexibility should not result in the strengthening of structural imbalances that exist in higher education. An inclusively flexible regime needs to encourage student ambitions to achieve a certain degree and enter a whole new world of possibilities, while institutions need to own their responsibility towards students' results.

Public spending on the education states, centre to be raised to 6% of GDP and analyzing the changes it would bring:

The important sources of education finance are the public sector and private sector. India will double public investment in education to 20% of its public expenditure or 6% of Gross Domestic Product over the next decade, amplify the right to education by extending it to all age groups, and enhance the gross enrolment ratio on higher education. The country will also let foreign universities set up campuses here.

To study the drawbacks of the NEP 1986 and to what extent NEP 2020 may overcome them:

The NEP 1986 focused on the removal of disparities and bringing equality, aimed for the development of human resources, international cooperation, and peaceful co-existence, development of socialism, secularism, and democracy. The NEP 1986 led to poor teacher training, lack of access. The new policy focuses more on national development by creating citizens with knowledge, skills, and individual development. The curriculum in the new policy is more inclined to allow critical thinking, discussion, and analytical learning, which aims to enrich India's talent and human resource pool.

Data source and Methodology

We have taken information from several articles, majorly from the Article, by Dr Vaneeta Aggarwal published by The Hindustan Times and an article published by Creatrix Campus, "The A-Z of the new National Education policy 2020" and other government pages. We have tried to point out the differences between the previous policy and the rectifications they have aimed to make in the latest education policy and while doing so we have analyzed how these might benefit us and how its applicability is plausible through point analysis and pictorial illustrations.

Analysis

As per the objectives of the paper which we have already mentioned, we see that there are some major differences depicted:

The policies of 1986 and 2020 have different concepts of Indian society. In the 1980s, world economies were largely local, and some were in the transient phase. Comparatively, the world economies today are operating as complex global entities. Given the same, the 1986 NPE focused on standardization and equal opportunities to all whereas NEP 2020 focuses on augmenting individual capacity and achieving excellence in the field of your choice by providing customizable options for education while hoping to reduce regulation via the provision of more internal autonomy to institutions. Furthermore, NEP 2020 is focusing on the economic value arising as a result of education and vocational training. The NEP 2020 has an important focus on competence-centred learning and employment opportunities arising out of it.

After studying the differences between the two here we have seen that there are some benefits and drawbacks in The New Education Policy 2020 which are as follows:

The first and the most important benefit is that the students will acquire more practical knowledge rather than rote learning and there will be increased flexibility in the choice of subject to study. The NEP 2020 will help students to develop a scientific attitude, vocational skills, critical thinking, and coding from a very young age which will promote value-based education.

The major drawback of The NEP 2020 is that the government has announced to spend 6% of GDP on education but according to last year's report, the government has spent less than 3% of GDP. The question arises, how and what steps the government will take to raise the GDP. And secondly, many students in rural areas are not provided with basic education. How will they be able to access or

study digitally?

Conclusion

The NEP 1986 created a pool of education and trained human resources to the value of the chain whereas the NEP 2020 envisions an India-centric education that provides high quality to all.

In summary, the NEP 2020 is in many ways just what India needs, as it grows into the world's largest workforce in the next few years.

To achieve the dreams it includes, we will have to overcome considerable execution challenges in a sustained manner for years and decades to come.

Also, according to the report, the implementation of this policy will start from June 2021, in the upcoming academic session which is funded by the central government.

REFERENCES

1. Hindustan times, Dr Vaneeta Aggarwal

2. The Quint, Shreyashi Roy

3. Wikipedia

4. India spend.

5. Public expenditures on education in India by Anuradha De and Tanuka Endow 6. Indian Era

7. The Times of India

8. The A-Z of the new National Education policy 2020 on Creatrix Campus 9. NEP2020: National Education Policy on the fast track, nationwide implementation kick starts in June by M Saraswathy.

Trends in the Indian Labour Market : From Jobless to Job Loss Growth

- Khyati Choksi[1], Adarsha Chattopadhyay[2] & Shilpita Chakravorty[3]

Introduction

In the years immediately following independence, unemployment was not expected to emerge as a major problem and was thus neglected in consequent Five Year Plans during the 1950s and '60s. This overlooking of an ever-present issue, along with a slow economic growth rate led to the growth of the Unemployment Rate from 3.1% in 1952 to 8.2% in 1975.

In 2004-05, 58% of the population, who reached working age in the last two decades, was absorbed into the workforce. This fell to 15% in 2011-12. This figure further plummeted, going below zero (-5%) in 2017-18, implying that several working-age individuals exit the employed labour force. It must be understood that these changes occurred while India recorded positive aggregate GDP growth.

Inspection and thorough analysis of data from the NSS survey and the report of the Periodic Labour Force Survey (PLFS) suggest that social barriers, the role of higher education, and government policies are factors contributing to the current situation.

The onset of the COVID-19 pandemic has worsened the employment situation in India and the world. It is estimated that approximately 2.1 crore jobs have been lost between April and August 2020. It is suspected that the upcoming recession and economic contraction will lead to further losses of jobs and wage cuts. However, effective government policies, effective economic practices, and foreign

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relations will help mitigate these challenges.

Literature Review

The technique of detecting Job Loss Growth in India, as a recent trend, with the help of time-series data and later backed by panel cross-section data was initiated by K.P. Kannan and G Ravendran (2019). Their work measured the job loss in India and how much of it got dispersed among the different sections of the Indian Community.

Santosh Mehrotra's (2019) working paper 'Informal Employment Trends in the Indian Economy: Persistent informality, but growing positive development' considers the effect of informal employment as a hindrance towards inclusive growth. The paper pointed out how a large section of the Indian communities' dependence on the informal sector for income is helping job loss growth. A part of the study also put a theoretical framework behind the phenomenon of why backward communities in larger proportions are leaving the formal employment structure.

Furthermore, Kris Punia's 'Future of unemployment and the informal sector of India' (2020) work showed how India's informal sector can be further left out from getting benefits provided by the government because of the pandemic. His paper analyzed and created a framework to predict India's employment situation based on recent trends.

Finally, mention must be made about the work of Friedrich Schneider and Kausik Chaudhuri 'Size and Development of the Indian Shadow Economy and a Comparison with other 18 Asian Countries' which provided much-needed insights into the background of the 'unreported' Indian Economy which is playing an important role in the formation of the recent trends of the Indian employment.

Objectives

The objectives of our research were:
1. To analyze the increase in the number of unemployed, that is 'jobless growth', in the post-independence scenario while highlighting the political, social, and economic dimensions,
2. To evaluate the impact of COVID-19 on the Indian labour market by analyzing the pre-covid and post-covid labour market trends, and
3. To provide an insight into what lies ahead.

Methodology

To meet the above objectives, we have compared and analyzed the unemployment and population figures between 1947 and 2020, and the pre and post covid-19 job-loss numbers. We have obtained our information from the NSS data, the PLFS(2017-2018) data, and data from the Ministry of Labour and Employment, all of which are credible and reliable sources.

In India's initial years of Development Planning, unemployment was not expected to emerge as a major problem. This expectation continued from one Five-year Plan to another (the 1950s and 60s), during which the economic growth rate remained low (around 3.5%).

Two key factors affected the labour demand in this period. The first was India's growth pattern, an outcome of adopting a growth strategy i.e.ISI or import-substituting industrialization. It was state-led capitalism, substituting for the absence of large corporates, who in any case could not be expected to invest in long gestation projects. This resulted in surplus workers migrating from the agriculture sector to the non-agriculture sector and getting absorbed in either traditional services in both rural and urban areas

or unorganized manufacturing in micro-enterprises.

The second factor was the plethora of central and state government labour laws. While hardly any laws applied to the small enterprises, the large enterprises became gradually subject to several laws passed by state or central governments, which protected the workers in the organized sector. With barely 6000 labour inspectors to regulate these laws, corruption seeped deep into the system and the reaction of the employers was to hire fewer workers. Hence, by the 1970s, the number of unemployed had doubled from 5 million to 10 million, even though the growth rate had been positive. This was the jobless-growth regime that was becoming increasingly evident. Thus by the mid-1970s, it was realized that economic growth alone could not be relied upon to tackle unemployment anymore.

Starting with 1983, we find the rate of growth of employment taking a declining trend since 2004–05, but this has been happening during a period of high and unprecedented aggregate economic growth regime in India. This indicates a significant decline in the national employment elasticity concerning growth. That is to say, every 1% growth is generating not only less than 1% employment growth but a declining one that came close to zero in 2011–12, and to a negative in 2017-18. The negative elasticity implies a displacement of labour from the existing labour force. Previously, we had defined the jobless regime as one where there was no growth in employment even when the output growth in the economy was positive. Following this logic, a 'job-loss regime' is defined here where there is a net decrease in employment corresponding to a change in the economy. As shown in the graph below, the employment elasticity has steadily declined and is expected to decline further.

Period	GDP growth (%)	Employment growth (%)	Productivity growth (%)	Elasticity of employment with respect to GDP
1972-1973 to 1983	4.66	2.44	2.22	0.52
1983 to 1993-1994	4.98	2.02	2.96	0.41
1993-1994 to 2004-2005	6.27	1.84	4.43	0.29
1999-2000 to 2009-2010	7.52	1.50	6.02	0.20
2004-2005 to 2009-2010	9.08	0.22	8.86	0.02

After the deregulation of the Indian economy in the early 1990s, four years saw a boom in informal sector employment. Total employment increased by 25.5 million between 1993-4 and 1999-2000, of which 5.1 million was in agriculture. However, around the early 2000s (2004-5) the ability of India's economy to absorb the incremental working-age population started declining with the last 7 years showing a negative trend. There has been a parallel but positive trend of increase in enrollment in the education of those in the working-age population but these numbers only account for a smaller share of the decline in the labour force. During the first two decades (1983 and 2005), only 12%-13% of the addition to the working-age population found themselves in the educational force that jumped to 30% by 2012. However, during the last period of 2012-2018, there has been some deceleration and the share has been 22%.

Period	GDP growth (%)	Employment growth (%)	Productivity growth (%)	Elasticity of employment with respect to GDP
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It is to be noted that the gender dimension in this process of declining absorption of the additional working-age population. From 2005 to 2012 and 2012 to 2018, there has been a net loss of women's labour force as well as the workforce. The process seems to have accelerated during the last period compared to the earlier one. Despite a higher share of young women from the additional working-age population taking to education, the share of those outside the workforce and educational force has been increasing so alarmingly that it has now reached 113% of the addition to their working-age population.

During 2011-12, the underemployment rate was about 3 per cent for rural males, 1 per cent for urban males, 17 per cent for rural females, and 6 per cent for urban females at the all-India level. Thus, the problem of underemployment was more severe among usually employed females than among usually employed males, and more in rural than in urban areas. Between 2009-10 and 2011-12, the underemployment rate had been stable for rural males, urban males, and urban females

but it increased by 2 percentage points for rural females. This indicates a prevalence of underemployment in rural areas, particularly among female workers who had some employment in a week.

Sectors	Absolute Numbers (in million)					
	Overall Population			Youths (15 to 29 years)		
	2004-05	2011-12	2017-18	2004-05	2011-12	2017-18
Agriculture	268.7	231.9	205.3	85.7	60.7	41.8
Manufacturing	53.9	59.8	56.4	22.4	22.1	18.5
Non-manufacturing	29.4	55.3	58.9	11.6	19.4	17.8
Service	107.3	127.3	144.4	34.5	35.7	37.6
Total employment	459.4	474.2	465.1	154.2	138.0	115.7
Unemployed	10.8	10.6	30.1	8.9	9.0	25.1
Labour force	470.2	484.8	495.1	163.1	147.0	140.7
NLET population	---	---	---	69.4	83.6	100.2
Participating in Education	---	---	---	56.8	99.0	127.0
	Share of workeers (in %)					
Agriculture	58.5	48.9	44.1	55.6	44.0	36.1
Manufacturing	11.7	12.6	12.1	14.5	16.1	16.0
Non-manufacturing	6.4	11.7	12.7	7.5	14.0	15.4
Service	23.4	26.8	31.1	22.4	25.9	32.5
WPR (%)	42.0	38.6	34.7	53.3	41.9	31.4
UR (%)	2.3	2.2	6.1	5.4	6.1	17.8
LFPR (%)	43.0	39.5	36.9	56.4	44.6	38.3

Source: Authors' estimation based on NSS Quinquennial rounds (2004-05 and 2011-12) and PLFS (2017-18) unit level data.

But even though gender is found to be a strong divider, education is emerging as a much stronger differentiator in the Indian labour market. A very strong differentiation was found between those with less than the secondary level of education (less than 10 years) and those with a secondary or higher level of education. It would appear that the Indian labour market is evolving along the lines of education more strongly than before.

When education was factored along with employment status, it was found that out of the eight categories of workers among the less

educated, seven categories experienced a net decline (displacement from labour force) in 2017-2018 compared to 2011-2012. These include all four categories of women (self-employed and wage labour in both rural and urban areas) and three categories of men (wage labour in both rural and urban areas and self-employed men in urban areas). The only category that experienced a net increase happens to be male workers in self-employment in rural areas.

Table 1: Addition to Working Age Population 15 Years and Above and Its Distribution

Period	Addition to WAP (mn)	Additions to LF, WF and EF as Percentages to Additions in WAP			
		LF	WF	EF	Out of WF and EF
Men and women					
1983–94	140.68	58.2	56.9	13.0	30.1
1994–2005	152.05	60.2	57.9	12.4	29.7
2005–12	137.63	14.5	14.7	30.3	55.0
2012–18	128.34	10.3	-4.8	22.1	82.7
Only men					
1983–94	72.82	80.8	79.4	15.2	5.4
1994–2005	78.65	77.7	75.7	12.2	12.1
2005–12	65.66	56.3	55.7	35.5	8.8
2012–18	64.97	48.8	24.1	23.0	52.9
Only women					
1983–94	67.85	34.0	32.8	10.6	56.6
1994–2005	73.40	41.4	38.8	12.6	48.6
2005–12	71.96	-23.7	-22.7	25.7	97.0
2012–18	63.36	-29.1	-34.4	21.2	113.2

WAP = working age population, LF = labour force, WF = workforce, EF = educational force.
Source: Computed from unit-level data from the respective rounds of NSS.

Table 3: Job Gain/Loss in 2017–18 Compared to 2011–12

Education Status	Gender	Labour Status	Location	Job Gain/Loss (%)	Job Gain/Loss (million)
Below secondary	Women	Self-employed	Rural	-29.1	-15.56
		Wage labour	Rural	-29.0	-10.45
		Self-employed	Urban	-15.9	-1.30
		Wage labour	Urban	-1.7	-0.16
		Self-employed	R+U	-27.3	-16.87
		Wage labour	R+U	-23.1	-10.62
	Men	Wage labour	Rural	-17.4	-14.49
		Wage labour	Urban	-2.1	-0.71
		Self-employed	Urban	-0.3	-0.06
		Self-employed	Rural	4.2	3.93
		Wage labour	R+U	-12.9	15.21
		Self-employed	R+U	3.3	3.87
Secondary and above	Women	Self-employed	Rural	-11.6	-0.71
		Self-employed	Urban	5.2	0.17
		Wage labour	Rural	51.5	2.02
		Wage labour	Urban	75.0	4.20
		Self-employed	R+U	-5.8	-0.54
		Wage labour	R+U	65.6	6.22
	Men	Self-employed	Urban	9.9	2.13
		Self-employed	Rural	15.7	5.44
		Wage labour	Urban	37.1	10.61
		Wage labour	Rural	40.3	8.78
		Self-employed	R+U	13.4	7.58
		Wage labour	R+U	38.5	19.39

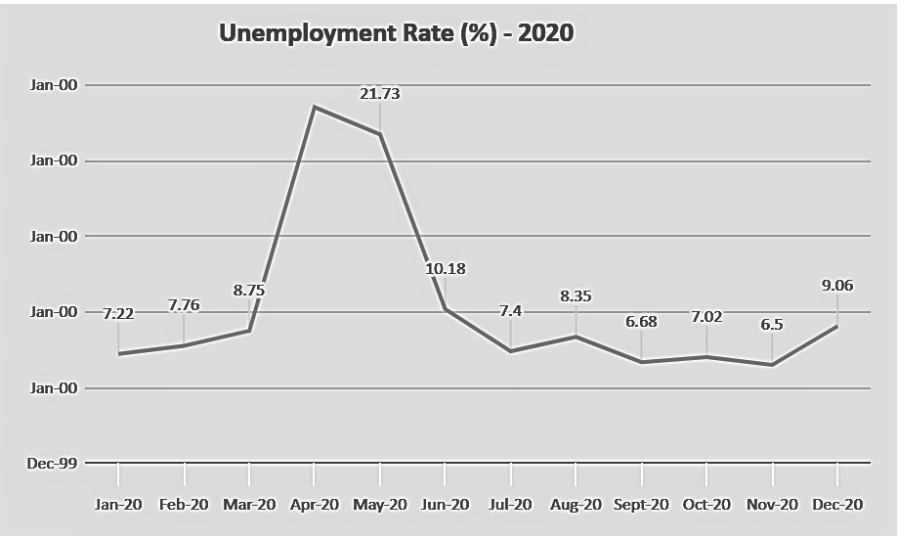
Shaded area represents the groups with net job loss.

In the case of those with higher education (secondary level and above), only one among the eight groups experienced a net decline in jobs, that is, self-employed women in rural areas. The table here presents the job gain and loss in terms of percentages as well as in absolute terms. Among the less educated category, men as a group gained in net terms both in self-employment and wage labour. But women lost heavily. This, we would argue, has also implications for interpreting the data on unemployment. When the unemployment rate is higher among the educated than among the less educated, the employment problem is posed as a more serious one for the former than the latter. The higher unemployment rate could be simply a reflection of the higher share of the educated willing to wait and seek employment, raising their unemployment rate. For the less educated, as we have seen in these numbers, the situation could be

one of getting trapped outside the workforce and education. Hence we can conclude that the worst affected are women in rural areas with less education. Even here, rural women in self-employment with higher education have also experienced a net decline in employment.

The impact of the Covid-19 crisis on workers was varied and was different for various sectors of the economy. More educated workers are engaged in work arrangements that offer a steady source of income and some degree of social security and who can shift their work to online platforms. Then some have low levels of education and are engaged in precarious and low-paying work of the kind that does not offer them the luxury of working from home.

According to CMEI, 122 million jobs were lost due to the COVID-19 lockdown in April. This loss decreased by 22 million in May, 70 million in June, and 19 million in July. Out of the total jobs lost in April, 75% were from the urban informal sector. This bracket of employment makes for about 32 per cent of the total employment which was worst hit by the lockdown. As for salaried jobs, only 21% of India's employment is in the form of salaried employees who are buoyant to economic shocks. There was a shortage of approximately 19 million salaried jobs.



CMIE estimated a recent trend of decline in unemployment. Despite this trend, the employment situation in India remains bleak. It was observed that in the pre-Covid-19 scenario, most labourers were employed in unsecured jobs with no financial or social security. Thus any economic shock would drastically deteriorate their earning potential. The pandemic and lockdown have worsened the situation by pushing even more people below the poverty line.

Empirical evidence shows a surge in self-employment in the short-run (mainly a period of 3 to 5 years) following a pandemic. There is still uncertainty about the fact whether the educated laid-off formal workers also opt for self-employment or informal work. There is a possibility that they have withdrawn from the labour force in the short run and will start returning once new job prospects and expansion of the economy started.

Conclusion

In conclusion, addressing the deteriorating conditions of employment and the widening disparities in behaviour, the job market requires strengthening and rebuilding the labour market from the bottom up. In the immediate term, this calls for an expansion of social assistance and public workfare programs to provide relief and protection to the most vulnerable and disadvantaged. However, this alone is not enough. It is the need of the hour, to increase the sources and volume of income in the country. Furthermore, people who are at a disadvantage for the skill and education ladder need to be given more safeguards in all forms of employment by increasing job opportunities. To achieve this a path of strategic growth and development is required.

References

[1] Kannan, Raveendran (2019), From Jobless Growth to Job-Loss Growth: India's Employment Performance during 2012-18

[2] Santosh Mehrotra(2019), Informal Employment Trends in the Indian Economy: Persistent informality, but growing positive development

[3] Ministry of Labour & Employment, annual reports, https://labour.gov.in/annual-reports

[4] Live Mint, COVID-19 lockdown impact, https://www.livemint.com/news/india/covid-19-five-million-salaried-people-lost-their-jobs-in-july-shows-cmie-data-11597752797552.html

[5] Economic Times, Indian job-market, https://economictimes.indiatimes.com/topic/Indian-job-market

[6] National Herald India, India's unemployment rate sees a sharp spike, rises to 6.98% in October: CMIE,

https://www.nationalheraldindia.com/india/indias-unemployment-rate-sees-sharp-spike-rises-to-698-in-october-cmie

[7] India Today, Around 12.2 crore people lost their jobs, https://www.indiatoday.in/education-today/jobs-and-careers/story/around-12-2-crore-people-lost-their-jobs-how-covid-19-will-change-job-prospects-and-hiring-in-india-1713616-2020-08-21

[8] Kris Punia (2020), 'Future of unemployment and the informal sector of India'

[9] Friedrich Schneider, Kausik Chaudhuri (2003), The Size and Development of the Indian Shadow Economy and a Comparison with other 18 Asian Countries: An Empirical Investigation

Mental Health issues in recent times

- Arbaz Ahmed*

Abstract:

The focus of this write-up is to find out some factors which influence students' mental habits at the undergraduate level & high school level. The research is based on information collected from various students irrespective of any course or college through assessment, questionnaire, and interviews. The study comes out with the result of some of the important factors that could be affecting people's mental health.

Keywords: Mental health, needs, tension.

Introduction:

According to the World Health Organisation (WHO), **Health** is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. We can thus say that **mental health** is an integral and essential component of health i.e. mental health is more than just the absence of mental disorders or disabilities. It is a state of wellness wherein a person realizes his/her capacities can see off usual stresses of life and can work productively to contribute to society. It is important to note that mental health is different from mental illness because it is the absence of what we can call a perfect state of mind, or rather, awareness.

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Factors accounting for / affecting mental health:

There are innumerous factors that contribute to the perfect state of mind of a person – most of those factors are un-quantifiable i.e. they cannot be directly measured using the general tools of measurement. Some broad factors that could be identified are:

(a) Heredity – We have no control over this, having a stressful parent could automatically induce stressful behaviour into the offspring. In Wallin's words, "defective heredity may furnish a fertile soil for the development of mental and nervous diseases but so far as minor personality maladjustments are concerned, heredity supplies only a predisposing condition".

(b) Physical factors – We start to overthink our physical appearance when we start comparing it with the general standard of physical outlook. It takes over the mind of the people in a way that makes them feel inferior to others, and this could be a potential fuel for inducing us to slip into ungrateful and self-defaming frames of mind. There is no denial of the fact that physical health improves mental vitality as much as it increases motivation and drive. It has been observed that continued hunger, overwork, or sleeplessness produce fatigue, and that may affect our mental health adversely.

(c) Social factors – An individual is born into a society that impacts the content of his behaviour. Among the social factors, the most important are the home and the community. Considering the home first, parents who give affection and security to their children contribute to their mental health. Nervous, tense, or self-centred, overprotective parents, domineering or inconsistent in

disciplinary practices or parents who are partial in dealing with their children lay the basis of mental inadequacy or ill-health. On the other hand, parents who share their life and time with their family and children, who show interest in the development of their children, play with them or work with them, help them to develop mentally healthy attitudes. The community gives the framework and climate

in which the family resides and thrives. It ought to provide, therefore, a healthy atmosphere and a well-organized network of public and private community services of the highest possible quality. Also, in today's time, where, due to the huge presence of social media, we are living up to the definition of Vasudhaiva Kutumbakam; because of this, we are so much exposed to the multi-type social standards in the world that we are made to, in fact, induced into believing that there's something that we're always missing out on, thus, constantly bothering us and thereby affecting our peace of mind.

(d) Satisfaction of fundamental needs – A person can never be satisfied on any level if the most fundamental wants/needs of human existence aren't fulfilled. We can relate it to Maslow's Hierarchy of needs i.e. physiological needs, safety needs, love and belonging, self-esteem, and self-actualization – a good state of mental health is a result of satisfaction of these needs at some certain basic level.

In this time of the pandemic, when people are bogged down with negativity and news of death and despair all over the world- surely, to say the least, peace of mind has taken a hit to such an extent that most people are scared to tune into the television; having been locked in homes since almost a year, it gives a sense of security as well as a sense of bereavement- security of being safe in our homes and bereavement towards those who are not lucky enough to possess the basics to fight off this difficult time(at least in their capacity). The previous year or so has exposed us in the sense that no one can say that he or she hasn't been mentally disturbed by what is happening in and around the globe. People have been struck with tensions of being at the receiving end of the disease, loss of loved ones, fear of loss of income, etc.

Can mental health be measured?

Measurement of something as abstract as mental health is too difficult. There is no particular scale that can be said to measure mental wellness correctly even to a 50% extent. However, we, as humans, love to try out things that we know won't work out. Measurement has often been done using some arbitrary scale of points to indicate different states of mental well-being. One such scale that has done this, is the Global Assessment of Functioning (GAF) – it uses a scale of 0-100(formed based on interviews, medical records, etc). It measures how much a person's symptoms affect their day-to-day life on a scale of 0 to 100. It's designed to help mental health providers understand how well the person can do everyday activities. The score can help figure out what level of care someone may need and how well certain treatments might work. The GAF is based on a scale that was first used in 1962. It's been updated over time. The different measurements of the scale are as follows:

The Global Assessment of Functioning (GAF)

Source: *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition

• **100-91:**	Superior functioning in a wide range of activities, life's problems never seem to get out of hand, is sought out by others because of his or her many positive qualities. No symptoms.
• **90-81:**	Absent minimal symptoms (e.g. mild anxiety before an exam), good functioning in all areas, interested and involved in a wide range of activities, socially effective, generally satisfied with life, no more than everyday problems or concerns (e.g., an occasional argument with family members).
• **80-71:**	If symptoms are present, they are transient and expectable reactions to psychosocial stressors (e.g., difficulty concentrating after family argument); no more than slight impairment in social, occupational, or school functioning (e.g., temporarily falling behind in school work).
• **70-61:**	Some mild symptoms (e.g., depressed mood and mild insomnia) OR some difficulty in social, occupational, or school functioning (e.g., occasional truancy, or theft within the household), but generally functioning pretty well, has some meaningful interpersonal relationships.
• **60-51:**	Moderate symptoms (e.g., flat and circumstantial speech, occasional panic attacks) OR moderate difficulty in social occupational, or social functioning (e.g., few friends, conflicts with co-workers).

• **50-41:**	Serious symptoms (e.g., suicidal ideation, severe obsessional rituals, frequent shoplifting) OR any serious impairment in social, occupational, or school functioning (e.g., no friends, unable to keep a job).
• **40-31:**	Some impairment in reality testing or communication (e.g., speech is at times illogical, obscure, or irrelevant) OR major impairment in several areas, such as work or school, family relations, judgment, thinking, or mood (e.g., depressed man avoids friends, neglects family, and is unable to work, child frequently beats up younger children, is defiant at home, and is failing at school).
• **30-21**	Behavior is considerably influenced by delusions or hallucinations OR serious impairment in communication or judgment (e.g., sometimes incoherent, acts grossly inappropriately, suicidal preoccupation) OR inability to function in almost all areas (e.g., stays in bed all day, no job, home, or friends).
• **20-11**	Some danger of hurting self or others (e.g., suicide attempts without clear expectation of death, frequently violent, manic excitement) OR occasionally fails to maintain minimal personal hygiene (e.g., smears feces) OR gross impairment in communication (e.g., largely incoherent or mute).
• **10-1**	Persistent danger of severely hurting self or others (e.g., recurrent violence) OR persistent inability to maintain minimal personal hygiene OR serious suicidal act with clear expectation of death.
• **0**	Inadequate Information.

Methodology and data source:

For this write-up, a questionnaire of six questions was prepared and circulated through a Google form and 105 responses were collected to analyze how some parameters lead up to a particular mental health score from the above scale. The questions pertained to monthly family income, age, gender, presence of mental health issues in the pre (and current) covid times. The questions were as follows:

Q1) Name; Q2) Age (in yrs); Q3) Gender (male=1, female=0);

Q4) Monthly Family Income (in Rupees);

Q5) Did you face anxiety, over-thinking, self-doubt, depression, and similar issues in pre-covid times? (Yes=1, no=0);

Q6) Did the problems (if existent, in Q5) get amplified during the last

1 year? (Yes=1, no=0);

Q7) What would be your Mental Health score (on a scale of 0-100) based on your responses to the previous questions? (Scale of reference= GAF).

Analysis:

The recorded responses to the above questions were put into STATA/IC 14.0 for analysis. The response variables were:

· Age ≡ of the respondent

· Gender ≡ of the respondent

· MnthFamInc ≡ monthly family income of the respondent(Dummy)

· IssueFaced ≡ whether or not mental health issues were faced by the respondent earlier(Dummy)

· IssueAmplified ≡ whether or not the above-mentioned issue was amplified in the past year(Dummy)

· MentalHealthScore ≡ mental health score

Putting in the 'summarize' command, we obtained the following results:

Variable	Obs	Mean	Std. Dev.	Min	Max
Age	105	21.60952	5.041168	18	64
Gender	105	.4666667	.5012804	0	1
MnthFamInc	105	137371.4	215915	3000	1500000
IssueFaced	105	.6285714	.4855042	0	1
IssueAmplified	105	.5238095	.5018282	0	1
MentalHealthScore	105	73.1619	18.3838	12	100

In the above table, disregarding the values for the dummy variables

(since they assume values 0 & 1 and are for qualitative analysis), **we observe that the average age of the sample is approximately 21.6 years (with a minimum age of 18 years)** .i.e. we can infer that most of them are college students, either just begun or about to graduate, depending upon the circumstances. Also, the **average monthly family income (in rupees) being close to 1,37,371. The average mental health score of the sample is 73.1619**, implying not a very good score, that is, most of the respondents faced some mental health issues owing to social problems or some factors that may have been faced, like, self-doubt, anxiety owing to the amount of negativity in the environment over the past year, owing to the pandemic, more importantly, fear of losing some loved ones to this disease could have also added to the tensions and worsened their thought processes. The average mental health score being on the lower side can be justified by the responses to Q5 and Q6.

Table for Q3:

The table below shows that there were more female respondents as compared to male respondents.

Gender	Freq.	Percent	Cum.
0	56	53.33	53.33
1	49	46.67	100.00
Total	105	100.00	

Below, **the table obtained from Q5**:

IssueFaced	Freq.	Percent	Cum
0	39	37.14	37.14
1	66	62.86	100.00
Total	105	100.00	

This table shows us that most of the respondents, 62.86% to be precise, had already been in the grip of mental health issues like anxiety, depression etc.

Below, **the table obtained from Q6**:

IssueAmplified	Freq.	Percent	Cum.
0	50	47.62	47.62
1	55	52.38	100.00
Total	105	100.00	

This table presents us with the fact that more than half of the people who had already been facing mental health issues, saw their issue getting amplified during the past year and the reasons could be any of the aforementioned issues.

Thus, from the responses of the Q5 and Q6, we may be able to confirm the low average mental health score obtained for our sample of study i.e. **more than half the respondents from the sample have been affected with mental health issues increasingly- the increase in these issues could be characterized by an increase in anger episodes, increase in household tensions and excessive consumption of negative online content which could also lead to depression, hampering sleep patterns and deterioration of physical health.**

Correlating the quantitative variables MnthFamInc and MentalHealthScore, we obtained the following result:

	MentalHealthScore	MnthFamInc
MentalHealthScore	1.0000	
MnthFamInc	0.0776	1.0000

The correlation table beside shows a relatively high correlation between mental health score and monthly family income- it makes sense because if there exists a relatively stable and high income of the family, people in the family are devoid of the tensions regarding basic necessities of the family and thus enjoy a better time. An exception to this relationship will be mentioned in the limitations of this study.

On further analysis of the descriptive results of the variables, the following were the results:

❖ On the gender front, males were marginally better-off as compared to females when it came to mental health scores- the possible reasons could be that females go through a lot of things that go unaccounted for, a lesser amount of socialization as compared to males(under normal circumstances), more physical issues, etc.

❖ And a study of the variables **IssueFaced&IssueAmplified**, the results were as expected, .i.e. respondents with a yes to the questions regarding the above two variables showed a considerably low mental health score as compared to the average of the sample.

Conclusion:

It can be concluded that factors like income, family issues, peer pressure, and surroundings shave a considerable impact on mental health in different magnitudes that are difficult to measure owing to their subjective nature. A considerable part of the population is always plagued by these issues, irrespective of the time of the year. We must start recognizing these issues on the large scale. However, no problem cannot be solved- mental health problems can be lessened with proper counselling, the distraction of mind towards something that people love, love, and care about by the society-this will form a completely different study.

Limitations of the study:

Small sample size – the sample size collected for the above study was only 105, which is not good enough to provide us with enough information for a more detailed analysis.

Skewed sample – the sample collected for the study is skewed in favour of the age group of 18-22 years of age which limits the scope of the study.

Some exceptions to the study to be mentioned: a high income does

not necessarily lead to peace of mind and thereby to a high mental health score, there is no particular pattern in which the genders are affected by mental health problems.

References:

Mental Health and Disorders - The New York Times (nytimes.com)

Global Assessment of Functioning (GAF) Scale (webmd.com)

10 facts on mental health (who. int)

I thank my respected professors Dr Debashis Mazumder, Prof. Puja Putatunda, and Prof.Ankita Rajgarhia for their continued guidance.

> The world will not be destroyed by those who do evil, but by those who watch and do nothing.
>
> – Albert Einstein

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