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Editorial

ECONOMICALLY BACKWARD RESERVATION: A PARADIGM SHIFT IN PUBLIC POLICY

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Abstract

The Government of India came up with the 103rd Amendment for reserving 10% of jobs and entry into public educational institutions for economically weaker sections (EWS) of the society. This is a significant departure from earlier reservation for SC/ST and OBCs, which were 'vertical' in nature while the 2019 Act for EWS is 'horizontal' in character. The Supreme Court has put a cap of 50% in total for different types of reservation, keeping in mind the constitutional stipulation that it should be reasonable and proportionate. In Indra Sawhney judgement, (1992) the court has excluded creamy layer from the ambit of reservation for the OBC. The Madras High Court has asked to Tamil Nadu government to get concurrence of Supreme Court to provide 10% reservation to medical seats to EWS, as it would cross the cap of 50%.

This paper is an attempt to run through political and judicial journey in looking at the conflicting challenges of equality of opportunity with affirmative action for bolstering socio-economic vulnerable sections of the society. It does not, prima facie, find any infirmity in the notion of economic backwardness qualifying for reservation as against caste based reservation. The paper also unveils how the income limit of Rs.8 lakhs per annum to qualify as EWS is humongous and at variance with the definition of BPL families whose per capita income was pitched at Rs.33 per day by the Tendulkar Committee in 2011. Many judges of the Supreme Court have observed that caste based or income based reservation has the disadvantage of promoting inefficiency in government jobs, particularly in specialised areas. Liberal democracy and market economy put a premium on competition and efficiency as the sine qua non of higher growth . The paper argues that a better way for promoting equality is to create an enabling environment, build human capability in terms of vocational training, skilling, access to state of art technology and higher social sector investment in merit goods, than is being presently done.

Keywords: EWS, Merit Goods, Liberal Democracy, Market Economy, Tendulkar Committee

1. Introduction

The Madras High Court has nixed the 10% quota for economically backward sections of society for admission into the medical colleges. The notification of 29th August, 2021 of the Madras Government was in pursuance of the Constitutional Amendment Act (2019), which provides for 10% quota for economically backward sections of the society, both for admission to educational institutions and public employment by adding Article 15(6) and 16(6) to the Constitution. Such quota will exclude those who are being benefited under the rubric of 'backward classes' under Article 15(4) and Article 16(4). It may be recalled that when the new reservation policy for "EWS" was introduced, twenty petitioners filed a writ in the Supreme Court stating that (a) the amendment violates 'basic structure' of the constitution, (b) reservation can't be based on economic criterion alone, (c) SC/ST and OBC can't be excluded from economic criteria, as it will run contrary to right to equality provision, (d) the additional 10% reservation will bust the limit of 50% put by Indra Sawhney judgement. The Supreme Court has referred the case to a 5 judge Constitution bench; being a matter of involving 'substantial interpretation of the constitution of India' under Article 145(3). The Constitution bench is yet to take up this significant policy issue. The Madras High Court has observed that the OBC quota should be limited to 27% as notified by the Union Government and not 50% as demanded by the DMK government and that the proposed 10% quota for EWS would need approval of the Supreme Court. This paper attempts to bring out (a) government initiatives to bring up reservation provision and the Supreme Court response, (b) the major landmarks of Indra Sawhney case (c) genesis of the new EWS provisions and (d) the way forward.

2. Government initiatives for Reservation and SC Judgements:

The first spat with the Supreme Court took place in 1951 when the Supreme Court struck down caste based reservation in medical colleges in Madras, in the famous Champakam Dorairajan Case (1951). The court clarified that caste based reservation runs contrary to Article 29(2) of the Constitution, which guarantees equal opportunity to all for admission in state educational institutions. It also did not agree with the contention of the state that it was promoting educational interests of SC/ST and weaker sections of the society as provided at Article 46, since the directive principles are non justiceable in nature as per Article 37. Such clinical and textual interpretation against affirmative action by the state spurred the Government to move the first amendment to the constitution in 1951, empowering states to make special provision for advancement of educationally backward classes of citizen or for SC/ST by adding Article 15(4) to the Constitution.

2.1.   The issue of caste based reservation again reared its head in 1962 in the famous M. R. Balaji and Others vs. State of Mysore case, which challenged a government 1959 notification as per which all communities except Brahminical community fell within the

definition of educationally backward classes; and reservation aggregating to 75% was envisaged. The court termed such reservation as "fraud on the constitutional powers under Article 15(4)", as categorization of 'backward classes' on the sole of basis of caste is not permitted. It defined 'backwardness' in terms of social and education attainment. Those citizens whose average of student population is substantially below the state average could take advantage of educational reservation under Art 15(4). The Court also put a cap of 50% as maximum limit for reservation. The court believed that 'excessive reservation would eliminate general competition and create wide spread dissatisfaction among employees, affecting their efficiency'.

2.2. Incidentally Tamil Nadu Government which is now in the eye of the storm has the dubious distinction of reserving 69% of seats and jobs for SC (18%), ST (1%) and 50% for OBC. The DMK founded in 1949 by C.N. Annadurai was based on a quest for social justice for the OBCs. When the Supreme Court in the Indra Sawney's case in 1992 reiterated the Balaji case decision to put a cap of 50% for all kinds of reservation, the Central government moved the 76th Amendment in 1994, reserving 69% of seats in colleges in Tamil Nadu and placed the Act in the 9th schedule of the Constitution. In IR Coelho vs. State of Tamil Nadu (2007) the Supreme Court has clarified that any Act put in the 9th schedule after 24.4.1973 (Kesavananda Bharati judgement) will be subject to judicial review. However, the anomaly of 69% reservation in Tamil Nadu still persists.

3. Major Lankmarks of Indra Sawhney Judgement

The Indra Sawhney judgement (1992) in major landmark in judicial activism, as it has not only reiterated a 50% ceiling on reservation but has tried to answer a number of complex and vexatious questions, like what constitutes backward classes, class and proportionality. It may be recalled that Dr. BR Ambedkar added the world 'backward' before classes in November 30, 1948, which was challenged by prominent members like H.N. Kunzru, as being 'vague' and likely to lead to complications later on. Though Dr. Ambedkar carried the day its exact purport still remains opaque. The Mandal Commission which had recommended reservation for OBCs had identified three criteria for backwardness viz. social, economic and educational, the benchmark for backwardness being 25% below the state average to be considered as backward.

The debate between the judges in Indra Sawhney case was twofold; how to reconcile the conflict between Article 16(1) which stands for equality of opportunity and Article 16(4) which advocates reservation. The second debate was whether the reservation % should be proportional to population, percentage as was the case with SC/ST, or less. The Mandal Commission had noted that the 1933 census had put the % of OBC as 52%; in which case the total reservation (SC/ST/OBC) would work out to 74.5%. While Justice Fazal Ali was comfortable with giving more than 50% reservation to OBC as was Justice Krishna Iyer, eventually to constitution

bench pegged OBC reservation at 27%, as Article 16(4) speaks of 'adequate' rather than 'proportionate' reservation.

3.1. The court had to handle another tricky terrain; as to whether reservation is antimeritarian. The judges in Balaji case seemed to agree that it does. However, the judges in Indra Sawhney case took a more diplomatic route by observing 'one need not make a fastidious fetish of it'. However, the judges were quick to add that posts involving R&D, Defence Services, Atomic Energy, Space, professors and Pilot, should not have provision for reservation. Balancing merit with positive discrimination towards SC/ST/OBC has thus witnessed a rare synergy between government policy and judicial approval.

3.2. Such a position is sharply different from USA, where the Constitution does not provide for reservation for backward communities like the blacks who constitute 18% of the population. However, the US Supreme Court has been at the forefront in ensuring that there is equality in treatment between the whites and the blacks. In the path breaking judgement Brown vs. Board of Education (1954), the Supreme Court struck down 'state sponsored segregation' in public schools. It overturned an earlier judgement of Supreme Court which approved 'separate but equal doctrine' in Plessy vs. Ferguson case (1896).

4.   **Genesis of the new EWS Provision**

Dr. Ambedkar became the messiah of the SC/ST by providing reservation in jobs and educational access in our Constitution in 1950. The Mandal Commission expanded the ambit to include the OBCs, a dream espoused by Jyotirao Phule through his Satyashodhak Samaj founded in 1848. The Modi government has taken reservation out of the narrow lane of caste backwardness to the alley of 'economic backwardness' through the 103rd Amendment. The trigger for this was provided by the National Commission on EWS headed by Maj. Gen. (Retd.) S.R. Sinho in his report of 2010. The committee had concluded on the basis of NSSO estimates that the people below BPL was not only high amongst SC, ST and OBC but high amongst the General Category also; at around 18.7%. The commission had also observed that poverty is not caste based, but socio-economically conditioned. It made a powerful plea to identify the economically weaker sections for 'extending various welfare measures' to them. However, the Commission did not recommend reservation on the EWS basis. The report provided the requisite ballast to Mr. Modi to capitalise on voters of upper caste sections of the society, cutting across all castes and religions, as EWS reservation has an All India resonance, since they felt discriminated vis-a-vis SC/ST/OBC caste only.

4.1. The Global MDPI report (2019) had estimated that 28% of India's population (364M) were below the poverty line, though India has a creditable record of lifting 271 million out of the quagmire of poverty (2006-216) though a slew of employment generation programs like the MNREGA. On the face of it it will be difficult to argue that the 103rd amendment offends

the 'basic structure'. Reservation on the basis of economic backwardness is horizontal in nature as against caste based reservation which are 'vertical' in nature. It is difficult to agree with the Supreme Court that the concept of class is not linked to economic criteria or poverty line. The Marxist logic of class conflict is predicted on economic criteria of labourers who are exploited by a motley group of capitalists. Besides, the basis of putting a cap of 50% on reservation of all types stands on fuzzy logic. However, the major discomforting aspect of the 103rd amendment is the annual income limit of Rs.8 lakh to qualify for EWS, as against poverty line per day of $0.5 (Rs.32) (Rs.27 per day in rural area and Rs.33 for urban area as per Tendulkar Committee report (2011-12)).

The Way Forward

The Supreme Court's judgements on reservation is largely based on the doctrine of affirmative action, as the Preamble to our constitution in predicated on 'socio-economic justice for all' and directive principles in Chapter IV which implores the state to undertake 'distribution of national resources to sub-serve common good' and reduce inequality in income. However, there are areas where the logic used in different judgements is sharply in variance. A case in point is Indra Sawhney judgement where the Constitution bench disallowed the 'creamy layer' to avail of OBC reservation. However, in the Ashok Thakur Case (2008), it did not see any merit in excluding creamy layer amongst the SC/ST from the ambit of reservation,

since they belong to a different 'class'!. Besides, the court has not arrived at any consensus, if reservation is anti merit. The economics of market competition runs against the politics of reservation. Political unanimity on reservation is based on harvesting political fortune, rather than promoting efficiency and higher growth in India. We have created a privileged pool within SC/ST, whose scope is not getting widened significantly. Reservation has created an elite class amongst SC/ST. The OBC experience is not similar.

Reservation of any form cannot be perpetuated indefinitely by any nation, striving to have a larger pie of national and global opportunity foster higher economic growth. With public sector jobs shrinking and entry into private schools increasing because of their thrust to foster quality of education, the discourse and hopes of the vulnerable and disabled section remain trapped in disillusionment and despair. The dichotomy between a flourishing private sector and a stagnant public sector in India, despite reservation in jobs, in shining testimony to the fact that the state is not investing adequately, in quality school education, better learning outcomes, and reducing digital dichotomy, which has widened further during Covid-19. A better way of promoting equality would be in terms of providing equality of opportunity for human capability development, after which they should compete on a level playing field for public sector job opportunity. Employment through the backdoor is against the canon of transparency and fairness in a democratic set up like ours.

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Modeling and Designing of Rainfall Derivative Contract in India

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Abstract

There has been a prolonged discussion on the use of rainfall derivatives in the Indian conditions. The use of rainfall derivative instruments that could empower the ecosystem of trading and absorbing rainfall risk. The study adopted a unique approach of designing the rainfall indexation based on proposed metrics which is DRD/ERD index, this could be used as building blocks for designing rainfall derivatives similar to HDDs/CDDs underlying temperature derivatives. DRD/ERD values are computed for 36 meteorological subdivisions of India. The basic rainfall future contract structure is defined and analyse how it can reduce the rainfall risk. Like CAT bonds and weather derivatives, rainfall derivatives constitute potentially a distinct asset class and hence could be an added arsenal in the hands of investors for enriching their portfolios.

Key words: Rainfall risk, Indexation, Rainfall Derivatives, Deficit, Excess, Rainy Days.

1. Introduction

The use of derivatives markets for hedging weather-related risk has been around for over 25 years. The Chicago Mercantile Exchange (CME) to list the very first standardized weather futures contracts based on weather indexes. Currently, there are nine US cities, two European cities, and one Japanese city listed at CME. Weather derivatives contracts are used by a wide variety of agricultural, energy and financial based entities from around the globe to help manage localised exposure to weather-related impact risk. The sustained growth of weather derivative market needs development of other segments of weather risk, particularly the rainfall risk which adversely impacts the economics of tropical countries like India.

An increasing focus on weather-related risks in India has become a major driver

of the demand for weather related derivatives products offering protection to adverse outcomes related to weather change. Extreme weather events are costing India $9-10 billion annually and climate change is projected to impact agriculture productivity with increasing severity from 2020 to the end of the Century (Vishwa Mohan, 2017). Indian Council of Agricultural Research's (ICAR) official highlighted that the "Indian will have to suffer a major loss due to rising temperature and uneven distribution of rainfall. If all the losses are compounded, Indian will be a major victim of climate change." The rainfall derivatives model is an initiative towards development of full-fledged rainfall risk markets in India. These markets would help to various enterprises, ranging from agriculture, energy, insurance, constructions and others sectors. The study aims to explore the plausibility of bundling the monsoon (rainfall) risk and transmitting it to the capital markets via rainfall derivatives. The study is mainly concerned with the conceptualization of rainfall parameter on par with HDDs/CDDs underlying temperature derivatives.

2. Rainfall Derivatives in India

Rainfall derivatives are new and emerging financial instruments in the derivatives market. Organizations or individuals can use it as part of a risk management strategy to reduce the risk associated with adverse rainfall conditions. Just as traditional contingent claims, whose payoffs depend upon some fundamental price, a rainfall derivative has an underlying measure as rainfall index. The

difference from other derivatives is that the underlying asset has no value, and it cannot be stored or traded.

Rainfall derivatives are instruments that can manage the effects of rainfall risk on agricultural production and other industries. In recent years, the interest in and the use of rainfall risk transfer products in the agriculture sector have increased significantly worldwide. The Enterprises engaged in insurance, energy, banking, and agriculture are the potential users of rainfall derivatives. In agriculture, rainfall derivatives are used as a form of insurance against the adverse effect of rainfall events such as droughts and floods. Skees and Barnett (1999) opined that weather patterns tend to exhibit positive spatial correlation, making losses more volatile from the insurer's perspective, increasing the cost of maintaining adequate reserves to cover potential losses from systemic events. Thus, insurance may not be the optimal mechanism for providing efficient risk-sharing. Turvey (2001) demonstrated that rainfall options could be used as insurance against crop production risk. Woodard and Garcia (2008) further tested the application of precipitation derivatives at higher levels of spatial aggregation and found it effective in reducing systemic weather risk. Seth et al. (2009) evaluated the use of weather derivatives among small farmers in India. The study found that 98% of farmers were worried about adverse rainfall and also felt that weather derivatives schemes would help them mitigate rainfall risk. Chokshi (2012) discussed the emergence of rainfall derivatives as a hedging tool and studied the feasibility of weather derivatives contracts in the context of risk management issues in agriculture.

Shivkumar et al. (2014) and Kotreshwar (2015) opined that rainfall derivatives can be a potential tool for hedging and speculation. Sutanuka Ghosal (2020) suggested that monsoon-based indices will be a great boost to help the agriculture value chain and it can be used as a hedging tool to mitigate rainfall risk.

There is a need to study the general framework of securitization of rainfall risk to create a rainfall derivatives market in India. Indian stock and derivatives market is well developed; trading in rainfall derivatives as a risk mitigation tool seems to be a viable proposal for India. Therefore, the proposed study is stated with a broad objective of measuring the rainfall indices for securitization of rainfall risk and study the feasibility for the creation of a rainfall derivatives market in India.

3. Literature on Designing Rainfall Indexation

The rainy day indices are the most common types of rainfall derivatives contracts. A rainy day is defined as the deviation of average rainfall from a pre-determined level. There are some definitions of 'rainy days' that are in use. The following definitions are discussed below:

Skees, et al., (2001) developed a season-based rainfall index based on average monthly payment percentages. The method for calculating the payment of percentage is as shown below:

$$\text{Payment percentage (drought)} = \frac{Strike\ Rain\ -\ Actual\ Rain}{Strike\ Rain} \quad (1)$$

$$\text{Payment percentage (flooding)} = \frac{Actual\ Rain\ -\ Upper\ strike\ Rain}{Actual\ Rain} \quad (2)$$

In equation (1) & (2) above was supported and adopted by Veeramani, et al., (2003).

MuBhoff et al. (2006) opined that daily precipitation derivatives model could be derived from relevant weather index. The authors concentrated on two important aspectsfor developing a weather index. Firstly, the daily precipitation model used is very flexible within the scope of a daily simulation. Basically, all yield relevant events like the sum of precipitation for different accumulation periods, dry spells, or extreme precipitation can be determined for any period of time. Therefore, the direct estimation of the precipitation index distribution is usually only valid for a particular index. Secondly, the accuracy of precipitation index is based on daily data of larger number of observed values.

The following character of precipitation model:

The probability of rainfall occurrence obeys a seasonal pattern. Ex. Rainfall in Europe is more likely in winter than in summer.

1. The sequence of wet and dry days follows an AR process. The probability of a rainy day is higher if the previous day was wet.

2. The amount of precipitation on a wet day varies with the season. Ex. Rainfall in Europe is more intensive in summer than in winter.

3. The volatility of the amount of rainfall also changes seasonally. Ex. Europe is higher in summer than in winter.

The proposed precipitation model was based on binary event 'rainfall and dryness'. The following method was used:

$$x_i = \begin{bmatrix} 0, & \text{if } day\ t\ is\ dry \\ 1, & \text{if } day\ t\ is\ rainy \end{bmatrix} (8)$$

Where, is a random variable and assumed that follows a first-order Markov chain. The probability that it will rain on day t can be calculated as:

$$P_t = P_{t-1}\ x\ q_t^{11} + (1 - P_{t-1})\ x\ q_t^{01} \quad (9)$$

Where, t= 1,2,...............n

q_t^{01}=describes the transition probability of rain on day t and dryness on the previous day t-1.

q_t^{11}=stands for the transition probability between two successive rainy days.

Kotreshwar (2006), Kotreshwar & Kanakasabai (2006), Kotreshwar and Rekha (2006) explored the conceptual framework for rainfall derivatives based on Millimeter Rainy Days (MRDs) index; this index was based on daily average rainfall (in millimeters). The average daily rainfall was serving as the reference level (R_x). The following methods were adopted to generate MRDs.

For Call Options MRD$_i$ = Max. {R_x – R_i, 0}   ...... (10)

For Put Options MRD$_i$ = Max. {R_i – R_x, 0}   ...... (11)

Where R_x indicates a reference level,

R_i represents the rainfall measured in terms of millimeters on a daily basis.

Ravikumar (2007) has proposed a rainfall index based on historical cumulative rainfall. The methodology of estimation of rainfall index is discussed below:

$$RI_{location} \frac{\sum r_{it}}{\sum R_{it}} X\ scale\ value = \ ...... (12)$$

Where r_{it} represents actual rainfall of ith day of the tth season; R_t represents long period average daily rainfall of ith day of the tth season; scale or multiplier value was assumed 1000 (rainfall was measured equivalent to 1/1000th of a met, i.e., in millimeter). $RI_{location}$ indicates what percentage of cumulative normal expected rainfall is realized, which means higher the rainfall index value than the cumulative average rainfall up to the date of index, more rainfall. Based on his methodology National Commodity & Derivative Exchange (NCDEX) launched on First Rainfall Index for Mumbai city in the year 2005, followed by indices for Belgaum, Erode, Guntur, Karimnagar, Ganganagar, Kottayam, Murshidabad, Rajkot, and Ujjain in 2006.

A similar estimation method of rainfall index was proposed by Multi Commodity Exchange (MCX) and Weather Risk Management Services Pvt. Ltd. (WRMS). They have jointly developed rainfall indices based on historical annual cumulative rainfall, and it is adjusted with excess and deficit of actual cumulative rainfall, as mentioned in the specific data. The adjustment factor takes into account the impact of historical and actual rainfall during the period.

Woodard and Garcia (2008) developed an accumulative growing season precipitant index. This index is defined similarly to the temperature derivatives. Cumulative precipitation (CP) was denoted by:

$$CP^{M,N} = \sum_{d=m-n} P_d$$

d = M-N,......M ...... (13)

Where, P is daily precipitation measured in inches. M-N is the first day of the contract period. M is the expiration date.

Patni (2008) proposed a cumulative rainfall index is a total rainfall received in a region from a reference base date to the date of exercise of an option. It can be defined as:

$$R_C = \sum_{t=1}^{n} r_i \quad ...... (14)$$

Where = cumulative rainfall index

Rainfall on ith day from a reference date.

n = number of days from reference date to current date.

Weighted rainfall index: Cumulative rainfall index takes only total rain over a period of time.

$$R_{WD} = \frac{\sum_{i=1}^{n} w_i r_i}{\sum_{i=1}^{n} w_i} \quad ...... (15)$$

Where, W_i= weight of rainfall for i^{th} day from a reference date. R_{WD}= Daily weighted rainfall index.

The different aspect of this method is estimation of weights for different days. Weights can be assigned based on bucket period instead of individual days. The size of bucket should not be too large reducing effectiveness or too small making it difficult to estimate the value for all weights. The index for period weighted index can be calculated as:

$$R_{Wp} = \frac{\sum_{i=1}^{n/k} w_i \sum_{i=i\,k-k+1}^{i x k} r_j}{\sum_{i=1}^{n/k} w_i} \quad ... (16)$$

Where, k= number of days per period, = period WRI

Odening et al. (2007) and Musshoff et al. (2011) developed two different types of rainfall indexes defined as a cumulative rainfall index and a deficit index.

i). the cumulative rainfall index (or rainfall sum is the sum of daily rainfall amount in a certain accumulation period:

$$I^c = \sum_{t-1}^{x} y_t \quad ... (17)$$

Where, x denotes the length of the accumulation period.

ii). Rainfall deficit index (defined as:

$$I^d = \sum_{t-1}^{x} min \left(0. \sum_{i=(t-1)x\,X-1}^{T=5} y_t - y^{min} \right)$$

... (18)

Where, this index measures the shortfall of the rainfall sum in a 5 days period relative to a reference level y min this shortfall is cumulated over Z periods. This construction principle is quite

similar to that of degree-day indexes. = average precipitation in the respective accumulation period. The rainfall sum and rainfall deficit are calculated for four accumulation periods like June 1 to September 30. The number of CCDs for a single day is defined as the amount by which the average temperature is above the reference temperature, 65° Fahrenheit.

Shivkumar & Kotreshwar (2013) proposed the process of rainfall indices based on a ticker value defined as Monsoon Outcome Index (MOX) and estimated their statistical properties of MOX series across time and subdivisions, and the study examined the potential of MOX as a new asset class for inclusion in the portfolio for risk hedging. The following method was used to measure the MOX index.

$$\text{MOX} = \frac{\sum R_{it}}{\sum R_{ct}} X\ 1000 \qquad \text{...... (21)}$$

Where, R_{it} indicates cumulative rainfall for the end of ith month of the tth season; R_{ct} indicates historical average cumulative monthly rainfall for the tth season, and 1000 is the multiplier value (where rainfall is measured equivalent to $1/1000^{th}$ of a meter, in millimeters).

Basu (2016) proposed two rainfall indexes that are used to measure the rainfall risk. Cumulative rainfall index also known as called rainfall sum index. It measures the sum of daily rainfall amount in a certain accumulation period and can be expressed as:

$$x = \sum_{i=1}^{n} R_i \qquad \text{... (22)}$$

Where, R_i represents the total rainfall during a particular day.

Rainfall Deficit index measures the shortfall in rainfall sum over a 'S' day period relative to a reference level of minimum rainfall. This shortfall is cumulated over 'Z' period. The principle of formulation of the index is quite to that of degree day index which is widely used in temperature market. The index (ID) can be defined as:

$$Id = \sum_{T=1}^{Z} \min \left(0, \sum_{(T-1)(S+1)}^{T.S} R_t - R_{min}\right) \qquad \text{...... (23)}$$

Shah (2017) modelled the daily rainfall in monsoon season (June to Sept.).

$$R_t = \frac{1}{n} \sum_{i=1}^{n} P_{it} \quad \text{...} \qquad (24)$$

Where, daily rainfall (R_t) in the location is a simple average of daily rainfall (recorded at the each of the n rainfall stations at time (t).

National Commodity and Derivatives Exchange (NCDEX) (2020) has launched two national-level rainfall-based indices that track the country's systematic rainfall movement. The two indices will only be representative rainfall indices in the country and were not available for trading. There are two models which are Indian Monsoon Index (Cumulative Monsoon Index) and Indian Rain Index (Monthly Cumulative Rainfall Index). These models are based on rainfall and it captures the deviation in rainfall from normal value. The following methodology is used to calculate the index value.

Figure 1: Identified Homogeneous Regions and Meteorological Sub-divisions
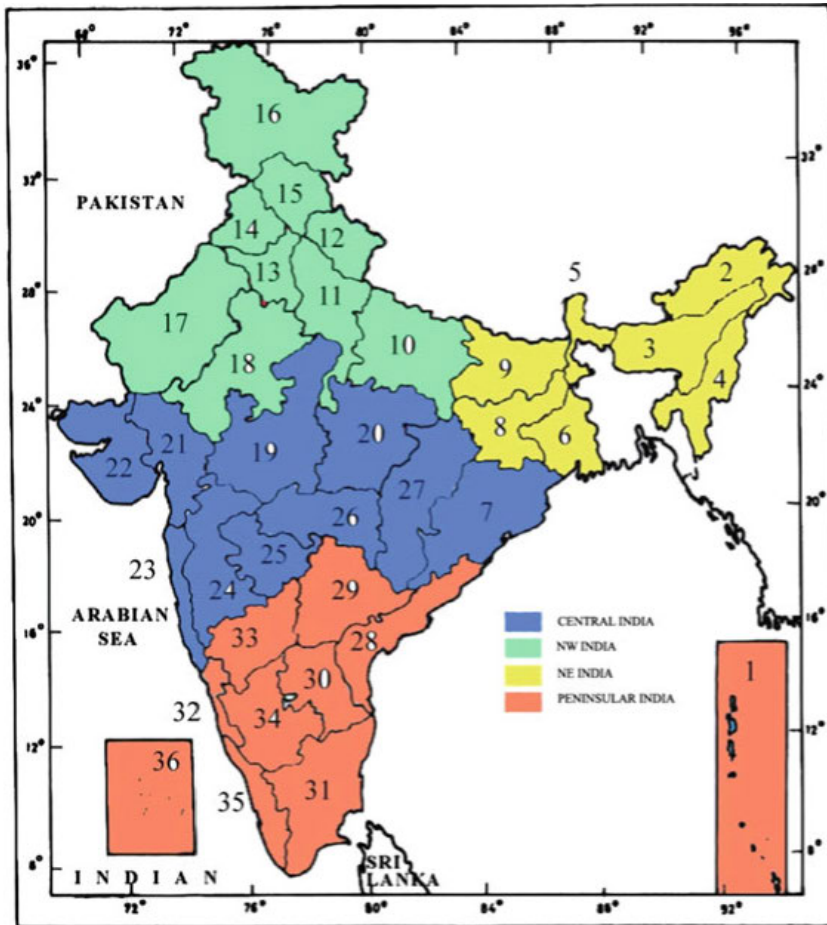
1. Andaman & Nicobar Island
2. Arunachal Pradesh
3. Assam & Meghalaya
4. N M M T
5. S H W B & Sikkim
6. Gangetic W. Bengal
7. Orissa
8. Jharkhand
9. Bihar
10. East U P
11. West U P
12. Uttaranchal
13. Har Delhi Chandigarh
14. Punjab
15. Himachal Pradesh
16. Jammu & Kashmir
17. West Rajasthan
18. East Rajasthan
19. West M P
20. East M P
21. Gujarat Region
22. Saurashtra & Kutch
23. Konkan & Goa
24. Madhya Maharashtra
25. Marathwada
26. Vidarbha
27. Chhatisgarh
28. Coastal A P
29. Telengana
30. Rayalseema
31. Tamil Nadu
32. Coastal Karnataka
33. North Interior Karnataka
34. South Interior Karnataka
35. Kerala
36. Lakshdweep

Source: Indian Meteorological Department (IMD)

Indian Monsoon Index = Σ (Actual Rainfall – Normal)   ......(27)

Indian Rain Index = Σ (Actual Rainfall – Normal)   ......(28)

The term Normal value of a particular day represents average rainfall for previous 30 years on that particular day. The normal value is calculated as sum of 30 years of rainfall data divide by 30 years. The calculation of both indices is based on the daily surplus/deficit rainfall data. The Indian Monsoon index is a seasonal index, this index would track rainfall on the basis of deviation from actual rainfall for which cumulative monsoon rainfall i.e. from 1st June to 30th September every year. On 1st June every year the index will be reset to zero. While Indian Rain index is a monthly cumulative rainfall index, this index shows the daily variations in the value depending on actual rainfall across the country. The value of the Indian Rain Index may turn positive in case of excess/surplus rainfall, if it turns negative in case of a deficit/drought. The index starts from zero as their base value every month.

4. Objectives

1. To study the framework for standardisation of measures of rainfall indices for securitization of rainfall risk.

2. To derive empirical values of rainfall indices for all the 36 Meteorological Sub-divisions of India.

3. To suggest a model rainfall derivative contracts.

5. Data and Methodology

The study covers all the dimensions of securitization of rainfall risk except the pricing issue. The present study is proposed to measure rainfall indices using empirical data of all 36 Meteorological subdivisions of India. For determining empirical values of rainfall indices, South-West monsoon rainfall data for the past 50 years (1970 to 2019) has been considered for all the 36 Meteorological Subdivisions of India. Indian These 36 MSDs are divided into four regions: East and North-East India, North-West India, Central India, and South Peninsula. East & North-East India has 7 sub-divisions. North-West India region has 9 sub-divisions, Central India and South Peninsula have 10 sub-divisions (fig 1). The study covers 50 years (1970-2019) of South-West Monsoon Season's rainfall data (June to September) of all 36 MSDs for the analysis. The rainfall data is collected from Indian Meteorological Department (IMD).

5.1 Methodology

The proposed methodology to compute rainfall index is based on the defined metrics Deficit/Excess Rainy Days (DRD/ERD). This approach appears to be more relevant to define and evaluate rainfall variability using DRD/ERD measures as standard metrics. The present study is based on the new approach for rainfall indexation.

Deficit/Excess rainfall at a given location needs to be quantified using a standard metric. For this purpose, the historical daily average rainfall for the selected location would serve as the 'base'

rainfall for calculating the metric. The rainfall at a location equivalent to being below a defined normal rainfall by one millimeter for one day can be denoted as 'Deficit Rainy Day' (DRD). Similarly, rainfall at a location equivalent to being above a defined normal rainfall by one millimeter for one day can be denoted as 'Excess Rainfall Day' (ERD).

The underlying variable being rainfall, let R_i denote the rainfall (in millimeters) measured on i^{th} day, and R_x denotes the average daily rainfall (in millimeters). The average daily rainfall, R_x, should serve as the reference level for rainfall in millimeters. The value of R_x is based on the past rainfall data for any chosen length of the period. The standard underlying variable would be simply the difference between the daily average value of rainfall (in millimeters), i.e., R_x and the actual value of rainfall (in millimeters) on i^{th} day, i.e., R_i. The DRDs generated on a given i^{th} day then is given by:

$$DRD_i = \text{Max. } \{R_x - R_i, 0\} \qquad (1)$$

Similarly,

$$ERD_i = \text{Max. } \{R_i - R_x, 0\} \qquad (2)$$

In equations (1) and (2) above, it can be seen that the number of DRDs / ERDs for a specific day is just the number of millimeters that the rainfall deviates from a reference level. The methodology adopted in this paper comprises the following steps:

Estimation of reference level of rainfall for each of the selected meteorological sub-divisions(MSDs) in India

i. Estimating the DRDs/ERDs for each month of the south-west monsoon

ii. Taking the sum of DRDs/ERDs for all the four months

The number of accumulated DRDs (D_n) for a period of 'n' days can be determined as follows:

$$D_n = \sum_{i=1}^{n} DRD_i \qquad (3)$$

Similarly, the number of accumulated ERDs (E_n) for a period of 'n' days can be determined as follows:

$$E_n = \sum_{i=1}^{n} ERD_i \qquad (4)$$

Monthly DRDs/ERDs facilitate capturing the element of variability in each month of the south-west monsoon. The DRDs/ERDs values were computed based on equations (1), (2) & (3) for the all 36 MSDs.

For example, the given historical monthly average rainfall for June for a location is 10 mm, and if the actual daily average rainfall is 9 mm, we can approximate the DRD for June as 30mm (1mm x 30 days). A zero DRD means that June month recorded excess rainfall. For seasonal DRD, South-West monsoon season of 4 months (June-Sept) historical average found to be 10mm, 12mm, 15mm, and 18mm respectively for a location or meteorological subdivision. The DRD value for location/MSDs is approximately 182mm (Table 1). The number of accumulated DRD for a

Table 1: Calculation of Monthly DRD (MM)

Month	June	July	August	September	Total
Historical Average	10	12	15	18	
Actual rainfall	9	10	16	15	
	1*30days	2*31days	0*31days	3*30days	
DRD	**30**	**62**	**0**	**93**	**182**

Source: Computed by the author

South-West Monsoon is a minimum of zero and a maximum of 182 mm for a location/MSD.

The study applies to each sub-division rainfall data series to validate the proposed method, which allows predicting actual rainfall at each sub-division and comparing these estimates to the actual rainfall values. The DRD/

ERD values are computed based on the equation of 3 and 4 for all 36 MSDs of India

6. Results and Discussion

The part is dealt with the discussion of proposed rainfall index parameters and rainfall futures contract specification. The use of rainfall futures contract has been discussed in the end.

Table 2: Proposed Rainfall Index Parameters of rainfall derivatives

Underlying symbol	DRDs				ERDs			
	Strike value (Avg.)	Max.	S.D	CV (%)	Strike value (Avg.)	Max.	S.D	CV (%)
East & North-East India								
Arunachal Pradesh	215	552	158	73	215	1124	228	106
Assam & Meghalaya	215	618	169	79	215	1006	250	116
NMMT	159	493	135	85	160	1449	247	155
SHWB & Sikkim	201	602	137	68	201	578	16	82
Gangetic West Bengal	153	403	94	61	153	465	128	84
Jharkhand	130	384	83	64	136	500	119	88
Bihar	138	401	90	65	138	553	112	81
North-West India								
East UP	124	397	94	76	124	600	114	91

West UP	122	345	92	75	123	443	105	85
Uttarakhand	157	748	167	106	157	673	153	98
Har. Chd & Delhi	93	246	64	69	93	356	87	94
Punjab	95	279	66	70	95	624	110	116
Himachal Pradesh	111	334	89	80	111	472	108	97
J & K	94	259	63	67	94	398	98	104
West Rajasthan	68	189	46	68	68	246	64	94
East Rajasthan	104	356	82	79	104	417	86	82
Central India								
Odisha	124	350	82	66	124	482	124	98
West MP	137	32	87	64	137	525	137	89
East MP	257	530	117	46	133	472	133	91
Gujarat region	189	557	145	77	199	663	199	86
Saurasthra & Kutch	162	448	112	69	135	443	135	122
Konkan & Goa	338	1028	255	75	338	1233	338	79
Madhya Maharashtra	102	287	74	73	123	486	123	80
Marathwada	123	334	71	57	1024	344	1024	99
Vidarbha	135	298.	87	65	162	1173	162	87
Chattishgarh	119	397	89	75	119	513	119	81
South Peninsula								
A & N Island	201	518	147	73	201	884	201	100
Coastal AP& Yanam	82	192	55	67	82	272	75	92
Telangana	114	291	76	67	118	508	120	102
Rayalaseema	75	169	45	60	75	287	73	97
TN,Pudu & Karaikal	48	167	34	72	48	141	42	87
Coastal Karnataka	348	902	229	66	348	1096	292	84
N.I. Karnataka	76	186	54	71	76	229	69	91
S.I. Karnataka	86	232	64	75	86	239	68	80
Kerala & Mahe	261	660	169	65	261	847	243	93
Lakshadweep	158	480	108	68	158	449	111	70

Source: SPSS output, computed by the researcher

Table 2 shows the proposed rainfall index parameters of rainfall derivatives contract. The rainfall derivatives contracts payoff is based on an underlying index (DRD/ERD), which is observed from rainfall data at a specific geographic location. Based on this, the mean (strike) DRDs values for the selected regions would serve as the 'base' for calculating the contract's payoff. For example, from the above table-2, the mean DRD/ERD values of south-west monsoon season for N.I. Karnataka were 76 mm; this value indicates that every year N.I.Karnataka has been facing a minimum of 76 mm of deficit rainfall from the south-west monsoon season. The N.I.Karnataka region's DRD values would serve as a benchmark for designing rainfall options and futures contracts for trading in the markets.

6.1 Model of Rainfall Futures Contract

Basically a rainfall index future is a derivative contract whose value depends on the underlying index. The underlying rainfall index can be defined and measured in several ways. The present study examined alternative methods of measuring rainfall indexes and adopted the DRD/ERD indices as standard metric which can be used as building blocks for designing rainfall futures contracts.

A model rainfall index futures contract involves specification of the following terms:

1) **Contract size:** the underlying is simply on index number that needs to be converted into a monetary value by a 'Multiplier' which for instance is 50 for NIFTY. The 'multiplier' is called lot size of the contract. This is necessary for determining the value of a futures contract. The chosen multiplier may be a sum, say Rs.1000. this means that contract size is 1000 times the DRD/ERD index points. If the DRD index is 200 points, the contract value is Rs.2,00,000.

2) **Product Description:** Empirically derived values of DRD/ERD indices are the products for each specified MSD or any other region or city.

3) **Tick Size:** it is the predetermined decimal applied to each index point. For instance, if the decimal is decided to be 0.1, then the tick size of the contract will be 0.1 x multiplier (=Rs. 1000 x 0.1 = Rs.100 per contract)

4) **Mode of Settlement:** the mode of settlement is compulsory on cash basis. This is because DRD/ERD indices are not physically deliverable.

5) **Contract Months:** As core part of monsoon covers a period of 4 months from June to September, these months are ideal for trading rainfall Index futures contracts.

6) **Ticker symbols:** As the underlying for rainfall index futures is either DRD or ERD index, the ticker symbol could be DRDX or ERDX.

Based on the terms described above, a model rainfall index futures contract for North Interior Karnataka MSD can be designed as shown below:

Table 3 : A model Rainfall Index futures contract (specification)		
1	**Contract size**	Rs.1000 times the respective DRD/ERD index
2	**Product Description**	DRD/ERD (millimeters) of North Interior Karnataka MSD
3	**Tick Size**	0.1 Index point (= Rs.100 per contract)
4	**Mode of Settlement**	Cash Settlement : Final Settlement Procedures for monthly DRD/ERD futures
5	**Contract Months**	DRD/ERD = June, July, August and September (4 months)
6	**Ticker Symbols**	DRDX or ERDX
7	**Position Limits**	All months combined: 10,000 contracts
8	**Pricing Unit**	Rs. Per index point (1 index point = 1 mm of rainfall)

Source: Compiled by the researcher

6.2 Risk Management using DRD/ ERD Futures

A simple numerical example is presented here to illustrate the hedging application of DRD futures. Let us assume that ABC Bank finds that its agri-loan revenue is negatively correlated with the North Interior Karnataka subdivision. ABC bank is concerned about the possibility of adverse rainfall and would like to use DRD futures to hedge against the possibility of deficit rainfall than expected rainfall. In order to construct a hedging strategy, it will necessary to quantity the relationship between agri-loan and monsoon conditions. A statistical regression between revenues and rainfall is useful in assessing the quantitative relationships. Assume that, based on historical regressions, ABC bank finds that its agri-loan revenue is negatively correlated with the North Interior Karnataka subdivision DRD index with a sensitivity ratio of 0.70, i.e., a 1 percent change in DRD may give drive a 0.7 percent change in ABC's anticipated Rs. 5 crores in revenues. Assuming futures are trading at 186, the no. of futures contracts required may be calculated as follows:

No. of futures contract = (Revenues x Hedge ratio) / DRD index x Multiple

= (5,00,00,000 x 0.70) / 186 x 1000

= (3,50,00,000 /186000)

= 188 futures contracts

This suggests that ABC bank might buy 188 futures contracts to hedge the risks of deficit rainfall and lower than expected revenues.

Table 4: Hedging with Rainfall Futures

		Revenues (without futures contract)	With Futures Contract
1	Now	Expected Revenue of Rs.5 crore	Buy 188 futures at 186
2	Later	Realised Revenue of Rs.4.64 crore	DRD futures settled at 205
		Revenue shortfall of Rs. 35.73 lakhs	Profit: 19 DRD x 1000 x 188 contracts
			= Rs. 35.72 lakhs
3	Results	Net revenue realiwsed is the same as the Rs.5 crore. ABC bank revenue loss of Rs. 35.73 lakhs is off-set by profit on DRD futures contract.	

Source: Compiled by the researcher

Assume that rainfall is scanty and DRD index settles at 205 DRD. This deficit implies 10.21 % (205-186 =19/186x100) increase in DRD and as a result revenues would fall by 7.147% (10.21% x 0.7) to Rs. 35.73 lakhs. The net revenue realised is the same as the Rs.5 crore. ABC bank revenue loss of Rs. 35.73 lakhs is off-set by profit on DRD futures contract. Proper use of rainfall futures contract not only enables ABC bank to stabilize revenue but may also be used to provide at least a partial hedge to the cost side of the equation.

The following case studies below are designed to illustrate some basic DRD-based transactions. Cumulative DRD for a period of 4 months (i.e., from 1st June to 30th September) comprising the south-west monsoon aggregated to give a quantitative measure of DRD/ERD index values over the season.

6.4 Application of Rainfall Futures

The following case studies below are designed to illustrate some basic DRD-based transactions. Cumulative DRD for a period of 4 months (i.e., from 1st June to 30th September) comprising the south-west monsoon aggregated to give a quantitative measure of DRD/ERD index values over the season.

Case Study 1:
Difference in Expectations

The demand for power is significantly affected by deficit rainfall in the monsoon season. The power generation company estimated that the 50 year average is around 86mm DRD for South Interior Karnataka subdivision. Suppose a company plans to hedge the event of a drought. The power generation company buys a monthly DRD futures contract, the less rainy day in the month the greater the value of the contract. Suppose empirical value of DRD index for south-west monsoon is 86mm, and actual due to deficit rainfall is 110mm. It will receive a payout of Rs.24000 (24mm x Rs.1000). If rainfall is normal, the power generation will increase leads to increase in the revenue.

Case Study 2:
Correlation across MSDs

The study found that DRD values of North Interior Karnataka subdivision have a negative (-0.337) relationship with Odisha subdivision. This means it is quite likely that when Odisha subdivision reels under deficit rainfall, North Interior Karnataka subdivision experience excess rainfall. Buying or selling DRD futures on both Odisha and North Interior Karnataka subdivision simultaneously, the loss in one is offset by gain in another. A crop insures with maximum exposure in Odisha for a drought outcome can buy Odisha subdivision DRD and simultaneously sell the North Interior Karnataka subdivision DRD. This is particularly useful when DRD is used as a distinct asset class by building a diversified portfolio by insurance companies having sold rainfall-based index insurance policies across a wide geographical area.

Case Study 3:
Commodity Market and Rainfall Futures Market.

India is third largest wheat producing country. Largest wheat producing state is Uttar Pradesh, India. Weather conditions are the important factor influencing the wheat production. A wheat trader at NCDEX expects that coming monsoon in Uttar Pradesh region is more likely to be below normal and goes long position for the season. The trader can hedge his position with a short position in DRD futures on a traded rainfall deviation in the East and West Uttar Pradesh region. If it is below normal the trader markets significant money on the wheat position at the relatively modest loss on the DRD futures, netting out to a profit. If monsoon turns out to be normal than the trader expected, the trader will lose money on the wheat position, which will be compensated in whole or in part by the payout from the DRD futures.

7. Conclusion

The study has intended to designing the rainfall indexation based on proposed metrics which is DRD/ERD index, this could be used as building blocks for designing rainfall derivatives similar to HDDs/CDDs underlying temperature derivatives. DRD/ERD values are computed for 36 meteorological subdivisions of India. Rainfall derivative instruments that could empower the ecosystem of trading and absorbing rainfall risk. The monsoon-sensitive sectors can use rainfall derivatives to effectively hedge rainfall risk. Rainfall derivatives can be a n attractive tool for speculators to satiate their instincts by betting on adverse rainfall outcome. Like CAT bonds, rainfall derivatives constitute potentially a distinct asset class and hence could be an added arsenal in the hands of investors for enriching their portfolios.

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Well-Being of the Health Care Professionals - A Review and Synthesis of Literature

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Abstract:

This pandemic time due to COVID 19 outbreaks, Hospital Sector has become a crucial sector for the whole economy. This virus undoubtedly has made us realize the unquestionable relevance of the hospital sector and the need for health care professionals (HCP). With this in mind, the purpose of the current research is to provide a comprehensive and concise state of the art, literature review on the concept of Well- Being of healthcare employees during the pandemic. Drawing on the various well-being models and dimensions, we attempt to identify the additional factors that can help maintain the Well- Being of Health Care Professionals through a Well-Being Structure (WBS). The current study builds upon the review of 100 published articles related to profound aspects of well-being, well-being during pandemic times specific to the healthcare sector. Research gaps in the literature have been identified to suggest future research opportunities. This present paper is timely because globally, the whole population is still suffering from this contagious disease. It may last on this earth to some extent always in coming years in one or the other geographical area. This review will be facilitating the Health Care Administration in maintaining and managing the well- being of Human Resources in an improved manner. Recommendations and future research are provided using Well- Being Structure. Finally, implications for the hospital administrations, health care professionals and society have been discussed.

Keywords: Health Care Professionals (HCP), Employee Well- Being (EWB), Corona Virus Disease (COVID-19), Well Being Structure (WBS).

1. Introduction

The Corona Virus Disease (COVID-19) is a novel disease of the respiratory system which developed in an individual with flu-like symptoms. The Coronavirus disease originated in Wuhan, China and got transmitted in the whole world within a brief span of time. Uras, (2020), observed the impact caused by COVID 19 has severely affected almost all parts of the globe. Pak et al., 2020 highlighted that COVID-19 has led to substantial social, economic and human crises. Berry and Stuart, (2020) highlighted that the pandemic has changed of "essential services" management worldwide. In the initial phases of COVID-19, the patients were treated by only the Government hospitals in various countries like India. Still, in the later stage, private hospitals were also asked to allocate some of the beds and emergency wards to the patients exposed to this infection (Nilima et al., 2020). William et al., (2020) identified that bed capacity plays a crucial role in managing the situation. During this time, many non-emergency cases shifted to telemedicine. It also led to increasing working hours of many private hospitals (Hare et al., 2020; Leite et al., 2020).

India, densely populated country with inadequate medical facilities was left with no option but to follow the lockdown policy (Saho & Ashwani, 2020). Stewart, (2021) observed a lot of uncertainties and risks due to COVID-19 outbreak. According to Evans and Over, (2020) the COVID-19 pandemic can also lead to poverty and can reduce access to healthcare facilities for many low- and middle- income countries. As far as the pandemic is concerned, it has caused an unprecedented challenge for the health care system worldwide (Ali et al., 2020); (Choudhery & Ansari, 2020). In such an environment, Health Care Professionals are bearing significant levels of psychological stress, stigma and mental anxiety (Brodie et al., 2021). Especially, the caregivers are facing mental and health problems and work-family conflicts in the light of COVID-19 pandemic (Kayaalp, et al., 2020). On the one side, the world fears this terrible virus and quarantine itself and does not want to contact any individual whether infected or not. On the other side, health care professionals are required to deliver their services to all patients in an unbiased way. The spread of Corona virus targets their ethical and moral values. During the pandemic, the health and safety issues were also targeted at the hospitals (Nielsen et al., 2020). Maintaining well-being of health care professional is the need of the hour.

Evidence from the past pandemics showed that Corona Virus is characteristic of "social vulnerability" (Gibson, 2020). The well-being of Health care professionals gets affected in such an environment. There are mainly three aspects namely, health, safety and well- being which is of paramount importance for the growth and development of every organization. Healthcare organizations must ensure their employees well-being and safe environment (Union, 2019). Within the workplace, well- being is first-maintaining employees own well-being. Secondly, managers and leaders

are also required to maintain well-being because if it is not supported, it will affect the productivity and performance of the workforce. Beyond the workplace, the organizations can support the well- being of the more indigent population (Kowalski & Loretto, 2017).

Human Resources have an essential role in supporting the organization's success, which necessitates the organizations to prosper them (Meiliyandrie et al., 2020). These days the well-being of working individuals is necessary to maintain because every single activity of the organization affect the individuals working in it. Organizations play a critical role in shaping well-being of their employees, as they provide a social environment for many employees that have an influential impact on people' quality of life (Lange, 2015). Nowadays, the measurement only confined to the demographic variable and characteristics of the job itself. Rather, it also measures the direct and indirect impact of cultural context, social values and societal belief systems. It has been found that the primary objective of the organizations is profit maximization for their owners. Organizations mostly spend considerable resources hiring employees, maintaining and retaining loyal customers and producing good quality products and services. The management largely ignores the well-being of employees. On the path of satisfying customers and maintaining long-term customer relationships, the well-being of working employees is somewhere ignored (Jayasinghe, 2017).

So, concerning the present situation and realizing the importance of maintaining the well-being of employees the primary objective of this research is to identify factors that contribute towards maintaining the well-being of health care professionals. The study will articulate the various research work done on wellbeing of health care professionals, specifically in context to the pandemic. It will highlight the guidelines provided by the World Health Organization for maintaining the Well Being of HCP (WHO, 2020). It will also help in answering the various research questions framed at the initial stage of the study.

Research Questions such as:

RQ1 What are the various theories and models proposed by the earlier researchers for maintaining well-being?

RQ2 What are the significant challenges faced by HCPs and how to overcome them?

RQ3 What are the factors which affect the well-being of HCPs during the pandemic?

RQ4 What are the factors which support the well-being of HCPs during the pandemic?

RQ5 What are the steps can be taken by the Healthcare Administrations for ensuring the well-being of health care staff?

In sum, we present a review of existing studies done during pandemic time related to well-being of health care professionals. We take a comprehensive approach and focus on the various

factors and dimensions of wellbeing of employees. We analyze the various studies done on healthcare professionals during the pandemic. We also present the aspects related to well-being of healthcare professionals as a part of this review additionally, the guidelines of WHO is also sated. Based on this, we proposed various dimensions in the form of Well-Being Structure that the hospital administrations can be adopted for their staff's good mental and physical health. Considering the previous research works related to well-being of healthcare staff and research works during pandemic times, we identify future research direction that can help establish a more substantial base related to employee well-being and encourage further theory development. Thus, this review paper is bifurcated into five sections: Introduction, Research Methodology, Literature analysis, results and discussions with future implications and limitations.

2. Research Methodology

2.1 Initial Search

A systematic literature review as suggested by Ghosh (2015) is performed in this research article. We searched the peer-review academic literature related to employee well-being specifically during pandemic time. We searched EBSCO host, SCOPUS, Google Scholars and ProQuest database. We have gathered a total of 119 articles by searching key-words like wellbeing, "wellbeing" AND "Pandemic" OR "COVID-19", "Health" AND "COVID-19" OR "Pandemic", "Heath Care" AND "Pandemic" OR "COVID-19". Additionally, we have explored high quality journals that are publishing on well-being of employees- International Journal of Human Resource Management, International Journal of Accounting, Finance and Business, Health Promotion International, Work and Stress and International Journal of Health Services.

2.2 Inclusion and Exclusion criteria

Each of the articles is subject to thorough evaluation on the basis of language, subject area, abstract in this systematic review process. This helped in gathering all the relevant articles available in the literature. After removing the conference papers, myriad articles, book reviews, prefaces and editorial notes and reviewing all the articles, a total of 100 articles were finalized, published in the English Language. An in-depth review of all the articles helped in successfully answering the research questions framed at the initial stage of the study.

2.3 Reporting of the findings

Finally, we have compiled all the literature in the area of Well-Being. In order to develop conceptual model including the four dimensions of well-being for the health care professionals, we thoroughly explored the most commonly used dimensions elaborated by previous researchers. All the necessary synthesis and analysis of research work carried out with the remaining selected articles in the upcoming sections of article.

3. Review and Analysis

After careful analysis of all the review articles this section highlights the

models of Wellbeing, dimensions of Wellbeing, challenges faced by healthcare professionals during the pandemic, remedial measures to overcome these challenges, factors affecting the well-being and factors supporting the maintenance of well-being of healthcare staff .

3.1. **Dimensions of Wellbeing:**

The workplace is a significant part of an individual's life that affects their life and the community well- being of the community (Pradhan & Hatti, 2019). These days Well-Being at workplace is a much broader issue. Well-Being is how someone feels about various aspects of their life, such as their home life, health, relationships, job and other activities (Page & Vella, 2009). It's all about whether a person feels well or happy in their life, whether a person is healthy, whether an individual is satisfied with their relationships, and whether they are satisfied with their jobs (Warr, 1990). While, at the workplace, the term 'Well-Being' is usually used for the examination of health and safety at work (Spa, 2000). In the earlier studies, it was found that the managers think about well- being from a single aspect only that is the "-Job Satisfaction". Later on, the three critical dimensions of the well-being concept has been introduced that focuses upon Happiness (Psychological well-being), Health (Physical well-being) and Relationships (Social well-being) (Grant et al., 2007). Therefore, Employee well- being is about more than job satisfaction, it's about optimising the health of all the employees, not just reducing the number of employees going through medical conditions (Gottman et al., 1998).

S. No.	Different dimensions of well-being	Source
1.	Mental/ Psychological, Physical/ Physiological	Griffin, (1999), Miller, (2020),Nilima et al., (2021) Imai et al., (2009) WHO, (2020),Updegraff et al., (2008).
2.	Affective well-being (anxious, contented), (enthusiastic, depressed), (pleased, displeased)	Warr & Warr, (1990), Miller, (2020),Updegraff et al., (2008).
3.	Subjective (feeling cheerful, satisfied, calm and peaceful), Workplace (life satisfaction), Psychological (self-acceptance, positive relations with others, personal growth and autonomy), Social (social acceptance, coherence, contribution and integration)	Page & Vella-Brodrick, (2009), Gioia et al., (2013), Nilima et al., (2021), Killgore WDS et al., (2020), WHO, (2020) Cherepanov, (2018) Cherepanov, (1999).
4.	Well-being-Hedonism or Hedonia(focuses on pleasure and happiness), Eudemonism or Eudaimonia (in which concern is towards potential human power), (sense-making)	Cooke et al., (2016), Liu, (2018)

5.	Psychological well-being (personal growth, self- acceptance, purpose in life), Social well-being (feeling of belongingness and attachment towards society), workplace well-being (work-life safety, employee assistance, employee growth, work climate) subjective well-being (calm and peaceful)	Pradhan & Hati, (2019), Gioia et al., (2013) WHO, (2020), Cherepanov, (2018),Cherepanov, (1999).
6.	Employee well-being: life well-being, workplace well-being, psychological well-being	Gottman et al., (1998), (Cherepanov, (2020), WHO, (2020)

Source: Author's Own Compilation

3.2. Analysis of Health Care related studies conducted during the pandemic:

During this pandemic, Health Care Professionals like doctors, paramedical, nurses, nursing assistants, operation room assistants, and non-technical staff working at COVID-19 hospitals from all over the worldwide have regarded as "Warriors". These warriors experienced psychological distress, depression, anxiety and insomnia because of the hefty schedules at the workplace (Sarla, 2020). By providing quality care to infected patients they are at the highest risk of getting the infection, because of which they are concerned about the well-being of their families (Kevin & Teoh, 2020).

It is observed that the prevalence of depression and anxiety is highest among healthcare workers during the pandemic (Gavin et al., 2020); Guterres, 2020; Sahebi et al., 2021). Although, employees are need to be treated fairly by their organization (Garg et al., 2012). The majority of the studies focused upon the health issues of the healthcare professionals and the hurdles they face in delivering quality services as depicted in Table-2. There are various studies that provide remedial actions to solve and overcome the challenges faced by HCPs as depicted in Table 3. In addition, various studies highlight the factors that affect and support the well-being of health care professionals conducted during the pandemic. Table 4 is a representative of the same.

Table 2: Major Challenges Faced by Health Care Professionals

Sr. No.	Challenges	Source
1	Allocation of scarce health care resources, Moral and ethical challenges.	(Litewka & Heitman, 2020), (Kinman & Teoh, 2020)
2	The abundance of information and difficulty to finding the right information to maintain health and well-being.	(Behaviour & Measures, 2020), (Abel & Mcqueen, 2020) (Otu et al., 2020)

3	Increase in stress and traumatisation due to isolation, feeling of vulnerability, social isolation.	(Hagger et al., 2020), (Kinman & Teoh, 2020), (Gavin et al., 2020)
4	Socioeconomic disparities.	(Otu et al., 2020) by (Rajkumar, 2020)
5	Burnout, fatigue, lack of emotional and psychological well-being, anxiety, self-stigma.	(Otu et al., 2020) (Kinman & Teoh, 2020), (Gavin et al., 2020), (Guterres, 2020), (Sahebi et al., 2021). (Wang et al., (2020), (Grover et al., 2020), (Rama et al., 2020)
6	Unfamiliar working environment, changing protocols, long hours shifts	(Kinman & Teoh, 2020),
7	Fear of death and death of colleagues	(Grover et al., 2020)

Source: Author's Own

Table 3: Remedial Measures overcome the challenges faced by Health Care professionals

Sr. No.	Remedies	Source
1	Formal ethics education	(Litewka & Heitman, 2020) (Otu et al., 2020), (Rama et al., 2020)
2	Public Health Infrastructure	(Litewka & Heitman, 2020)
3	Health literacy, Self-care skills	(Behaviour & Measures, 2020), (Abel & Mcqueen, 2020), (Grover et al., 2020), (Ripp et al., 2020)
4	Stress Management, Maintaining mental health, psychological counselling hotlines	(Hagger et al., 2020) (Otu et al., 2020), (Philip & Cherian, 2020), (Ripp et al., 2020)
5	Acknowledge and honours the healthcare workers	(Otu et al., 2020)
6	Promoting resilience and self-care and psychological support	(Otu et al., 2020), (Ripp et al., 2020)
7	Effective leadership , peer support programs	(Kinman & Teoh, 2020), (Philip & Cherian, 2020)
8	Mindfulness training, relaxation therapy, adequate sleep	(Grover et al., 2020)

Source: Author's Own

Table 4: Factors affecting Well Being and Factors supporting Well Being

Source	Affecting Factors	Supporting Factors	Research Population	Country
(Zaidi et al., 2020)	Vulnerability to risk, Stress and Burnout	Physical Needs, Mental Health, Sleep, yoga, mindfulness.	Frontline workers	New York city
(Otu et al., 2020)	'Slow Motion Disaster', Stressful environment, Restlessness Depression, Fear, Exposure to personal risk, Insufficient availability of PPE kits.	Reducing stigma, Mental health therapy, Appropriate use of PPE kits, Eating healthy, Active lifestyles, Maintaining social links, Peer support, and ensuring meeting the basic needs Promote resilience, and Self-care behaviour.	Health care Workers	China, Western countries, United States
(Brand, 2020)	Traumatic impacts, Mental illness	Team Spirit	Health Care workers	China
(Morabia & Covid-, 2020)	Traumatic situation Mental stress in the general public. Pandemic of "Stigma and discrimination".	Crisis Management	General Public and frontline workers	US, China
(Hossain, 2020)	Frustration, Anger, Distrust, Moral distress, Professional oaths, lack of PPE kits	Sufficient supply of PPEs, Responsiveness, Friendliness, respect, guiding, trust-building and optimising benefits	Health Care Providers and Patients	Bangladesh
(Fischkoff et al.,2020)	Ethical Dilemmas-Responsibility, Fairness, Dignity, Honoring death	Design the required protocols for the pandemic time by the administration.	Health Care	Italy, France, America, New york
(Klasen et al., 2020	Moral, ethical and practical dilemmas	Prioritising health, safety and well-being. Learning opportunities, Thinking skills and Proper health insurance is also needed	Medical Students	Around the globe
(Forman et al., 2020)	Corona Virus is considered as a "War like scenes for the hospital sector", Hospitals struggling to gain control over the virus.	Transparency, Decisive Leadership, Unified decisions, Global Solidarity, Effective communication, Accountability, Trust building.	Health care providers	China, South Korea, Singapore, Taiwan

(Ripp et al., 2020)	The unprecedented strain on HCW, Shortage of critical care medical resources, Limited availability of PPEs, Disease-related anxiety.	Meeting basic daily needs. Enhance communication of accurate information Developing robust mental and psychosocial support system Leadership care for staff	Health Care Workforce	New York city
(Dzau et al., 2020)	Emotional Distress- stemming from social isolation, the pain of losing colleagues to the disease and social stigma.	Integrate chief well-being programs, Psychological safety of clinicians, Sustain and supplement wellness programs.	Clinicians	United States
(Shanafelt et al., 2020)	Maintaining a large volume of patients, extreme workloads, societal shifts, greater exposure to risk, lack of rapid access to testing, uncertainty with the organization support and lack of up to date information.	Support from organization Expression of gratitude is powerful. To hear, protect, prepare, support and care for health care professionals in challenging times.	Health Care Professionals	America

Analysis of well-being literature during and before pandemic paves a way towards identifying the shift in factors affecting the well-being of healthcare professionals as depicted in Figure 1

Figure1: Shift in Factors affecting Well-being of HCPs
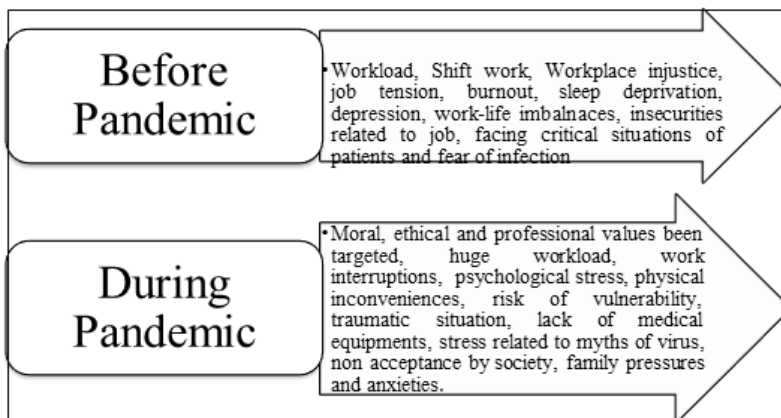
Source: Author's Own Conceptualization

3.3. WHO interim guidelines for hospital sector

In January, 2020 the World Health Organization (WHO) declared the new disease, COVID-19,-as a pandemic (Emergency et al.,2020). Geographically the virus has affected the general public around the whole globe. The organizations such as- the World Health Organization (WHO) and the Ministry of Health and Family Welfare (MOFHW) stated that the countries like India are required to generate awareness about taking action against this terrible disease. Moreover, the necessary preventive measures must also be undertaken, like- wearing masks, frequent hand sanitising or hand washing, and avoiding direct contact with suspected individuals, which should be obeyed by society (Kumar et al., 2020). *Figure 2* highlights a few of the interim guidance which the WHO has provided for welfare of society in general. The purpose of this interim guidance is for psychosocial planning and safety for health care workers who provide care and services during the Covid-19 pandemic. Protecting Health Care Workers (HCW) is of paramount importance to WHO (Hcws & Yes, 2020).

Figure 2: WHO Interim Guidance for Hospital Sector

Workplace Hygiene/ Use Disinfectant	Practise Respiratory Etiquettes	Ensure Infection Prevention and Control (IPC) standards	Ensure efficient Infromation channelling
Prioritize the Psychological Well- Being	Prioritize testing	Secure adequate staff and resources (PPE)	Provide health Hotline numbers
Engage in healthy activities that are relaxing	Provide compensation for the quarantine period	Provide support for Voluntary caregivers	Long term care facilitates
Maintaining physical distancing	Mobalize adequate funding	Display posters for promoting alcohal based hand rub dispensers	Avoid dissemination of false information, misconceptions
	Ensure continuum essential services to Warriors	Ensure effective monitoring of imapct of Covid-19	

Source: WHO (Interim Guidance), 2020

4. DISUCSSION

4.1. *Why maintaining Well-Being is Important of Health Care Professionals?*

From the last two years, around the globe we have experienced the unfortunate situation, which has drastically broken trust and faith of population. Everyday people are going through do or die situations. This is so hard to believe that by touching an infected place or by coming close to an infected person will be lead to death. But the situations are prevailing in this direction only. Additionally, population at large who were suffering from one or the other disease prefers to stay at home and get advices from doctors through phones. But, this is only the one side of coin, on the other side health care professionals cannot stay at their homes and provide diagnosis to the patients from telephones. They have to be present all the times at the hospitals for providing proper care and treatment to the corona virus suspected patients. That is why the situations demands necessary well-being practices for the well-being of health care professionals at their workplace. When an employee well-being practices are implemented in the organizations, employees feel more connected and devoted towards their jobs and professions. Ensuring well-being of health care professionals is important as it could affect the patients level of satisfaction and raising their quality of treatment. Emotional stability and patience is necessary to work in the field of healthcare. Health Care professionals play a central and critical role in improving access and quality health care for the population.

Figure 3: Maintaining Well-Being of Health Care Professionals through Well Being Structure (WBS)
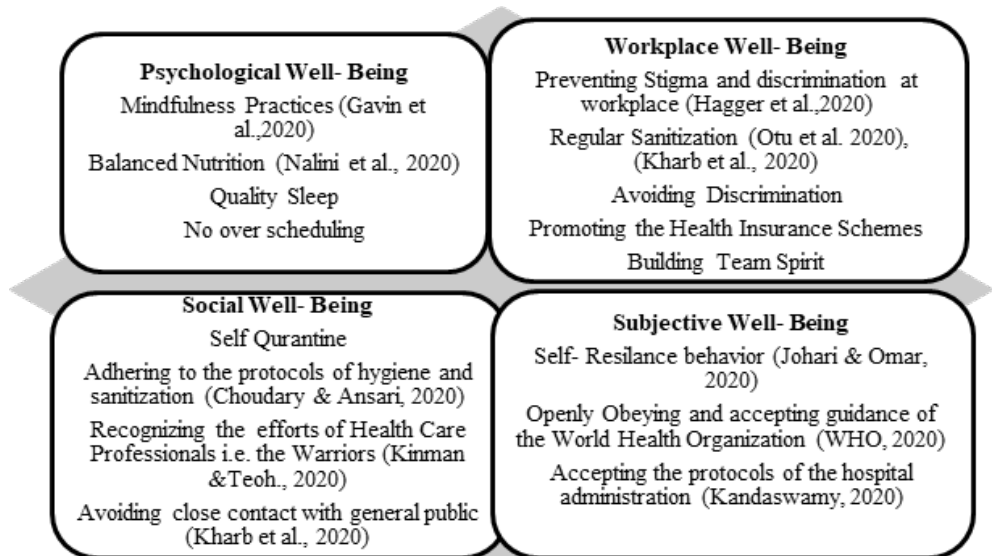
Source: Author's Own

In order to secure well-being of Health care professionals, we developed a conceptual model (Well-Being Structure).

4.2.   *Well Being Structure (WBS*

There is a widespread understanding that "Good Health is Good for Business". Health and well-being play an essential role in individual and organizational performance (Christine et al., 2020). Realizing the importance of Well-being in the Health Care sector and its role during the present pandemic times, in this study, we attempt to identify the various dimensions of wellbeing and propose a Well Being Structure. WBS is based upon the dimension as stated by (Pradhan & Hati, 2019), (Cooke et al., 2016), (Hyett & Parker, 2015), (Zheng, 2015) in their article in which major dimensions of Well Being are proposed. According to Pradhan & Hati, 2019, four significant dimensions of Employee well-being includes Psychological well-being (PWB), Social well-being (SWB), Workplace well-being (WWB) and subjective well-being (SBWB). Here, PWB defines the individual's own perception about their lives and experience gained in their lifetime, such as- self-acceptance, personal growth and purpose in life. SWB implies the positive state of our relationships and social stability, such as- the feeling of attachment and belonging towards society. WWB relates to all the aspects of working life including, employee assistance, work facilities and environment. SBWB involves the evaluation of one's current situation. Considering all these dimensions and keeping WHO

guidelines in mind, we synthesize the above literature to mention the various dimensions of well-being in the form of Well Being Structure (WBS). WBS is based upon the hard times that the health care professionals are going through and the dimensions and the sub-dimensions are purely constructed by considering the pandemic period.

The well-being is constructed on three aspects- employee commitment, job satisfaction and work-life balance situation (Garg & lal, 2016). Current research builds upon the four dynamics of well-being, namely- Psychological well-being, Workplace well-being, Social well-being and Subjective well-being (Pradhan & Hati, 2019).

Psychological Well-Being

Psychological well-being consists of positive relationships with others, personal mastery, autonomy, a feeling of purpose and meaning and life, personal growth and development (Griffin, 1999). These days the mental well-being of Health Care professionals must be given due consideration. There is a lot of stress in the lives of healthcare professionals, such as- alterations in the rules and regulations, extended working hours, more workload upon each and every staff member and problems in getting leaves. In order to tackle all these psychological stressors that health care professionals are going through these days, management must ensure certain practices which HCP can adopt in their daily lifestyle to reduce the stress level and mental anxiety, fear of Novel Corona disease. Firstly, HCP can devote their time to

mindfulness practices by encouraging employees to do meditation, yoga and spiritual activities. Secondly, health care professionals must follow and maintain a healthy diet plan. During the pandemic time, everyone is suggested to start their days with Tulsi hot water or tulsi tea and ensure the consumption of ginger and garlic in vegetables to boost the immunity system, which helps our body fight against unwanted diseases. Medical staff should include all these essential items in their healthy eating schedules. Thirdly, health care professionals must take 8-10 hour of sleep, which is regarded as universal for all individuals. Complete and deep sleep make an individual's mind fresh and energetic. During the Corona phase, healthcare professionals have been suffering from sleep deprivation. Also, that is required to be cured by taking complete sleep. Last but not least, medical professionals must maintain and follow their daily work schedules, which would not lead to overwork or work stress in the future. Handling patients files are itself a big deal, pandemic the volume of patients is increasing day by day. For HCP, all the beds are occupied for all the weekdays, which created a different workload on these warriors, such as maintaining every patients records. Health care professionals must follow the probe for reducing workload in the future- 'Do tomorrow's work, Today, Today's work, Now'

Workplace Well-Being

At its most superficial level, workplace well-being is perhaps ultimately about personals happiness, feeling good

and working and living safely and healthy (Meiliyandrie et al., 2020). Even though, the Government allowed some organizations to commence their regular activities by opening lockdown, health care is the only industry working throughout the pandemic. Other organization learned, maintaining hygiene and sanitizing after the outbreak of COVID-19, while hospitals followed these hygiene practices earlier also. Moreover, if the only pandemic phase is being considered, the world is facing a panic situation. To prevent and reduce this panic situation, hospital administration must avoid the transmission of wrong information among the staff which is being spread through social media at a considerable level. The only reliable source whose data could be trusted is the World Health Organization (WHO) and the Ministry of Health and Family Welfare (MHFW). Hospital management must ensure the regular sanitization of their working areas, emergency wards, sitting areas, clinics and entrance areas. Additionally, management must ensure indiscrimination (Mawani et al., 2020) at the workplace and promote team spirit. The administration must initiate the trend of insurance schemes. - Employees get themselves insured along with their family members to reduce the unpredictable risks.

Social Well-Being

Social well-being is having good relationships, social stability and peace. People are social creatures who are mutually dependent, relying on other for their own well-being (Jayasinghe, 2017). In the crisis times the societies

from where the- 'Corona Warriors' belongs show neglected behavior. The communities do not welcome the front-line workers as they getting exposed to this terrible disease. To argue, people need to love and be loved. Therefore, there is a need that societies must show tremendous respect towards these warriors, because they did not shut themselves in a room with the fear of this pandemic. Instead, they are standing at the front lines to save the community, the nation and the world. Health care professionals were treated with inequalities in society (Consolazio et al., 2021). Some staff nurses hide in the rooms during their non-working hours, as they don't want to leave their jobs and also don't want to further spread this virus. It becomes the responsibility of both the citizen- working and non-working to prevent the spread of this disease. If someone gets infected with this virus, he/she should not be treated poorly by society, by health care professionals. Responsibilities could be as follows- firstly, health care professionals need to adhere to the protocols of hygiene and sanitization. Hand sanitization has become a part of life these days, professionals from the hospitals are required to maintain proper hygiene- changing gloves frequently, sanitizing hands before and after meeting any patient and before and after touching anything, dispose of their Personal Protective Equipment (PPE) regularly, do wash their clothes separately, do sanitise all their equipment which is necessary daily- stationary items, files, medicines, handles of doors, mobile phones and wear face shield while interacting with the infected patients. Secondly, while at home, these warriors

must self- quarantine themselves, and avoid social contact with people. It is observed that Corona Virus teaches us all to staying in home, maintain social distancing, sanitizing hands, avoid interacting with people and many more as safety precautions. So, if individuals are supposed to interact with another individual, they must ensure all these safety measures, although the person is infected.

Subjective Well-Being

Subjective well-being refers to how people experience and evaluate their lives and specific activities in their lives (Page & Vella-Brodrick, 2009). In scientific terms, subjective well- being is the happiness and life satisfaction of thinking your life is going well and not wrong. During the pandemic time, subjective well-being is how every individual is dealing with the Corona Virus, What are their attitudes towards this virus? Either they are in fear of dealing with courage. It is all about maintaining one individual happiness and satisfaction throughout the pandemic phase how the different activities and regulations generated by the hospital administration and the World Health Organization are taken by the health care professionals. Whether they are expecting all the guidelines and protocols in a suitable manner or not, whether they obey the protocols of the organization acceptably. All these aspects play a crucial role in maintaining subjective well-being.

Implications of research work:

Hospital Management should need to support their Health Care

Professionals and promote resilient behaviour. They should encourage peer and social support such as informal communication (employer-employee relationship) in the organization which will be helpful in maintain the organization's well-being (Zhou & Panagioti, 2020). There are certain precautions that the hospital sector is required to take care of to maintain and manage the well-being of the health care providers:-

- Hospitals must conserve the number of beds and the number of healthcare personnel exposed to the infected patients.

- Doctors should be provided training for pandemic management.

- Incentives, insurance and extra care, should be provided to these warriors. Health Care professionals need to improve their immunity to cure the disease.

- Medical personnel should work in spacious areas using Personal Protective Equipment (PPEs), so there is the need to maintain a large stock of PPEs, N95 masks, sanitizers, gloves and face shields.

- COVID-19 must be regarded as a test for our health care personnel that is judging their resilient behaviour.

- Training sessions must be provided to the Corona warriors about- how could they manage their stress, depression, insomnia and mental trauma, to provide good quality of care treatment to the patients with this virus as the patients themselves feel lonely and hopeless when they get caught with this infection.

- The clinical and medical accessories must be accessible to all the departments without any biases.

- Hospital's professionals must be encouraged to do exercise, yoga, meditation, take adequate sleep, family interactions, which boosts their confidence to do work with all their dedication and their preventive behaviour.

- The hospital's administration must maintain an adequate staff, which must be assigned the job of only sanitizing the workplace. The more the number of visitors in the hospitals, more is the need to sanitize every material with which the visitors, patients and staff get in touch, such as- handles of doors, switches off lights, fans and lifts, stationary material- pen, pencil, files of hospitals and furniture. So, it is required to sanitize all the touched material.

- The society from which the Corona warriors belongs, must value the work of these warriors as these professionals were exposing themselves to the risk for social good

The present research would lead to a range of advice to managers and leaders to prevent their staff from chronic stress and poor mental health. The study has various implications for the policymakers in Hospitals Management to enrich the well-being of health care professionals. A few are stated below:

- Ensure good quality communication and accurate information in the working environment- Management must discourage the spread of wrong information in the workplace as such information could lead to rise in the stress or the fear level of their profession.

- Implement flexible schedules for professionals- Managers should provide a flexible working hours to the warriors of the Corona Virus because it is difficult for the warriors to convince their families, to allow them to offer their services in hospitals.

- Ensure social support between your team- The Health Care Professionals are required to support and motivate each other which will ensure a happy and healthy environment.

- Rotating the health care professionals from 'higher workload' to 'lower workload' units the volume of patients has been enhanced in each department of the hospital. The rotation of employees will help to maintain a balance between their work and family.

- Keep your team connected and feeling supported in isolation- At the workplace the colleagues spend their time with each other as they spend their time with their family members. Families are the most vital support for every individual. In the times of COVID-19, health care professionals are living in the hospitals away from their families,

so they are required to support each other.

- Maintaining well-being is all about 'speaking up'. So, managers must talk to their subordinates, and encourage them to speak up about their fears and anxiety about the Novel Corona Virus.

5. CONCLUSION, LIMITATIONS AND FUTURE RESEARCH AGENDA

The pandemic had placed the globe in such a difficult situation that the world is required to achieve clinical legitimacy and sustainable growth (Player, 2020). The primary goal of this research work was to contribute to the existing literature on well-being research by studying the well-being of Health care professionals with context to prevailing situations of COVID-19. Our research work has highlighted the various factors that contribute to or affect the well-being of HCP during pandemic times. The study also specified the HCPs challenges and mentioned the remedial measures to overcome these challenges. In terms of theoretical contribution to the well-being literature our study shows the various dimensions and factors of wellbeing in the form of Well-Being Structure (WBS). Thus, it adds to the existing body of knowledge about well-being of employees in healthcare sectors specifically with context to pandemic times.

Our study also contributes in a manner by stating the precautions and implications for the hospital sector, which can assist the managers

to effectively and efficiently meet the objectives of the hospitals along with taking care of their most precious assets that are, the employees who are known as 'Warriors of Corona Virus'. Moreover, the Protection Motivation Theory (PMT) could be regarded as the base for dealing with the pandemic, because only this theory discusses about the protection and motivation. This theory explores the six constructs such as- perceived vulnerability, perceived severity, self-efficacy, protection and motivation (Bashirian et al., 2020). The linkage between these two- factors with the COVID 19 pandemic can provide useful insights to the hospital sector. Thus, the Hospital Administration needs to be very proactive during pandemic times and ensure proper health and safety of the healthcare providers.

Much of the existing debate is on the challenges faced by health care sector during pandemic times. In this study an attempt is made to overcome these challenges by doing a detailed analysis of the existing wellbeing literature. The majority of existing studies focused upon the problems faced by health care professionals such as- highest risk of infection as they are the most vulnerable (Choudhery & Ansari, 2020), well-being of their families is concerned, overwork schedules and high psychological stress (Gavin et al., 2020). The study findings provide a fresh perspective to resolve issues being face by healthcare professionals by stating various implications that the managers or the hospital

administration can adopt for a better and improved well-being of hospital staff.

Despite these contributions our research work has the certain limitation that should be overcome by future studies. First the study is purely review based and does not capture the impact of the COVID-19 on employee well-being empirically at a global level. This is essential to understand the extent to which health care professionals are suffering from crisis and future studies can contribute in this area in an improved manner. The Well Being Structure (WBS) is framed and proposed on a review basis. There is a need to strengthen this model through a future empirical investigation. Researchers can identify which dimension out of the proposed four dimensions psychological, workplace, subjective and social well-being will contribute at the highest level towards the well-being of the health care professionals. Future studies can also be undertaken to understand the extent to which these practices are implemented by the hospitals to the better of well-being of health care workers. The COVID-19 pandemic will continue to evolve for many years. The intensity of infection may be more or less in different geographical areas. The Economy as a whole must learn a lesson from this pandemic and put them into practice. Hence, the implications of this research should be required to be communicated clearly to all the stakeholders for the benefit of society as whole.

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Transactional Leadership Style and Organizational Performance: The moderating role of emotional intelligence

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Abstract

The basic purpose of this paper is to examine the relationship and impact of transactional leadership (TL) style on organizational performance adopting the moderating role of emotional intelligence (EI). Attainment of higher level of performance is not only possible through pre-defined goals and objectives rather also through achievement of emotional maturity. Survey response of 220 mid-level managers in the manufacturing sector of Nepal were collected. This study used two step Structural Equation Modelling (SEM) technique for data analysis. Findings of this study showed that TL insignificantly and negatively influence organizational performance (OP). Further, the overall results revealed the weak moderating role of EI in TL-OP relationship. Additionally, recruiters and managers should invest resources in management of impulsive feelings, sentiments and emotions in organization. Employees loaded with good level of Self-Management abilities can contribute towards better financial outcomes.

Keywords: Transactional leadership, Emotional Intelligence, Organizational performance, Manufacturing Companies, Structural Equation Modelling

Introduction

Leadership provides the right path in which leaders and superiors coordinate with each other to accomplish the corporate objectives. Leadership is built over the foundational stone of followers (Wilson, 2020). Right leadership can create positive and direct effect on organizational performance (Coetsee, 2022). To determine the leader's effectiveness, performance of outputs, are to be measured. Stakeholder's appreciation, comparative performance, financial soundness are

few indicators to determine outputs (Thai, Anh, & Farhad, 2019).On a higher level, the performance of the country is also related to the strength of the manufacturing sector. Individuals having high Emotional Intelligence show trait to behave appropriately at tough situations and ability to act prosocial (Raugh, Michelle, Harrison, & Stephan, 2016).Employees at manufacturing sector are expected to operate at maximum pressure, they need to focus on the outputs generated and targets achieved. In addition to the expectations of organization, they need to maintain healthy relationship with superiors and other stakeholders, they are expected to possess high levels of EI (Subhashini & Shaju, 2016). Despite the tough working environment due to pandemic and crisis, employees possessing high EI displayed highest level of work performance. On the contrary, employees with low EI encountered high stress at work (Gomez, Max, & Breso, 2021). COVID-19 has created serious effect on employees social and mental health thus leading to the "psychological pandemic". Accordingly, meditation and stress therapy technique were proposed to tackle this condition (Sher, 2020). EI is regarded as the influencing psychological determinant which may have crucial role in pandemic situation.

Goleman (1995) focused on ability to understand emotions and regulate those emotions to promote intellectual growth. EI is an ability how we perceive, access and generate emotions so as to develop our corresponding thoughts. At workplace, employees with high level of EI indicate attractive

behavior and thoughts with high degree of professionalism (Angelidis & Ibrahim, 2011). Furthermore, Mittal & Sindhu, (2012) explained effective communicator, positive attitude, flexible thoughts and emotionally balanced are characters of effective leaders. In this context, EI is described as a special capability to deal with emotions at work place. It comprises of self-awareness, self-management, social awareness and relationship management (Goleman, 1995).Study in different scenario has revealed that EI fosters effective leadership (McCleskey, 2014). There is ongoing interest in the area of EI and OP. Abundant amount of literature explored relationship between TL, EI and OP. However, majority of research focused on education sector but limited of such studies have been carried out in manufacturing sector of developing economies (Jorfi, 2010; Molero, et al., 2019). The primary aim of this study is to highlight the influence of TL on OP adopting the moderating role of EI in manufacturing companies.

Literature Review

These days organizations seem worried about relationship, empathy and problem-solving training programs; hence they prefer investment on EI. These traits later can be utilized to address critical situation and communicate requirement in the transparent and specific way (Pearman, 2011). EI as a moderating variable resolves issues with work-life balance and increases the employee participation and boost work outcomes (Abraham, 2003). Findings revealed

positive and significant relation of EI to job satisfaction. Moreover, the effect of EI on OP can be seen at the interpersonal communications (Mulla, 2010).Person with high EI levels are good communicators at the interpersonal interaction with employees in an organization. However, the findings differ according to the dimension of the questionnaires. For instance; Schutte used 33 item questionnaire comprising appraisal of emotion, social skills, utilization of emotions. It leads to the different conclusion on EI and job performances (Shi & Wang, 2007).

EI helps to improve the work capabilities of employees and makes them, organizational goals and objectives oriented through teamwork and trust (Arfara & Samanta, 2016).Those people who are emotionally intelligent possess better thinking, positive attitude, focused, loyal and dedicated towards their profession which in turn creates a favorable environment for improved job performance (Miao, HUmphrey, & Qian, 2017). Employee burnout can be controlled with the ability to regulate and manage emotions (Arfara & Samanta, 2016).As there is lower burnout in an organization, it improves the employee engagement which builds the habit of consistent focus on the task and lead towards the higher degree of motivational performance. Recruiters need to be aware about the traits of EI especially self-awareness and regulation (Lee, 2018).EI determines the level of performance of an employee in organization; high EI signifies better performers while low EI produce average/low performers (Molina, Mercedes, & Deniz, 2019).Similarly,

organizational culture is also regarded as an influencing factor in determining the emotional capability of employees (Saad, Sulphey, Delany, & Adow, 2021)

Findings suggested that EI has a positive significant relationship with recruitment (Blank, 2008). Candidates with high EI would lead to reduce the requirement of basic training (job stress, burnout, work life balance). Initially, it contributes towards the reduction in cost of training and also unlock the opportunity to focus on alternative training and workshops. Research asserts that emotionally intelligent people tend to be more controlled and stay focused in negative situation (Subhashini P., 2008), which leads to higher level of satisfaction, commitment and loyalty (Miao, HUmphrey, & Qian, 2017). This claim seems similar to the Goleman's (1995) findings which put emphasis on the identifying the moods and emotions in the job to ensure the maximum performance (Singh, 2007).Future recruiters are more aware about the application of EI

Organizations directly dealing with clients/customers tends to encounter work pressure. So, the role of EI in these customers centric business would ensure the increment in the quality of services (Deshpande, Joseph, & Shu, 2005). Managers who are aware about EI have better relationship and tend to be more cooperative and better at conflict resolution (Nicholas, 2010). EI is an inseparable part of performance (Gomez & Breso, 2020).It contribute towards the management of emotions during stress and survive organizational

change (Lopes, Grewal, Kadis, Gall, & Salovey, 2006).People having higher EI levels tend to tolerate stress and enhance their competencies at work.

In contrary, few research studies claim no/negative relationship of EI with transformational leadership (Flavia, Moreno, & Hickmann, 2012).These type of findings has created a dilemma for the development of strong scientific base for EI (Stefan & Sabie, 2020).Although there are few exceptions, but EI plays crucial role in leadership effectiveness (Rahman S., Ferdausy, Amin, & Akter, 2020).Organization should incorporate EI as a part of recruitment, commitment and employee retention which can contribute towards the interpersonal communication and performance.

Theoretical Framework

Transactional Leadership

Transactional leaders are seen outcome-based type of leadership. There appears the exchange of resources; could be it monetary or non-monetary between followers and leaders. They believe in mutually beneficial exchange but not necessarily to develop an enduring relationship (Northouse P., 2019). This type of leadership considers contract, agreement or any type of exchange conducted between leaders and followers. (Avolio B., 1999). They are strongly focused on the outcome. As these leadership believes in exchange, there is give and take relationship established between leaders and followers.

Avolio & Bass, (2002) mentioned about the two components of transactional leadership

Contingent Reward

Leaders at this phase promises rewards or actual rewards others for carrying the assignments satisfactorily. This type of rewards can be material one such as bonus and psychological like praise. (Antonakis, Avolio, & Sivasubramaniam, 2003; Rahman, Ferdausy, & Karan, 2012). It excites people to achieve higher level of performance.

Management by Exception (Active)

It is categorized into two types, active and passive. If active, leaders monitor deviances from standards, mistakes and errors but if passive, watch deviances, mistakes and errors occur and initiate to correct it. (Northouse P. G., 2016)

Emotional Intelligence

Emotions involve excitement of mind feelings and passions (Stephen & M., 2021). Initially, the concept of emotional intelligence was defined by the term Intelligence Quotient (IQ), social intelligence which means to monitor one's own and others emotion. Later on, Daniel Goleman further outlined four main emotional intelligence constructs. Self-awareness is the first construct which explains on an ability to read emotion and identify the impact on persons sentiments and decision making. Second constructs, self-management, is an ability to manage disruptive emotions and impulses under control. In the same way third construct social awareness, is the skill at sensing other people's emotions and understanding their perspective and taking an active interest

in their concerns. Lastly, relationship management focuses on ability to de-escalate disagreements and weird situation (Goleman, 1995).

Organizational Performance

Taking financial facts and figures which shows the profit of organization is an easy financial indicator to assess organizational performance (Kaplan, 2010); however, these metrics have been disputed. As they were chastised because they promote a short-term outlook, rewarded short-term results and produced management problems in long term. These indicators do not supply appropriate information about the customer expectations and competitor performance quality which creates a strategic dilemma. At overall, there are multiple groups of stake holders inside or outside the company that can influence the organization's performance.

Kaplan & Norton, 1996, mentioned two types of performance

Financial Performance;

Organization Performance measurement can be regarded as the undeniable part of the business (Mahdeen, Dmour, Obeidat, & Tarhini, 2016). It measures the financial state and outcomes of an organization. Hence, financial performance portrays the financial health of an organization directly (Wei & Wright, 2011). EVA (Economic value added), Revenue generation, profit, Cash flow etc. are included for financial measures. Moreover, financial performance suffer limitation.

Non- Financial Performance;

Traditional financial performance measures are not sufficient to handle firm and market (Ramezan, Sanjaghi, & Baly, 2013). Profit, cash flow, turnover is inadequate to define business performance (Tseng, 2010). Hence, the use of non- financial performance measures has gained importance. It measures long term success of the organization like customer satisfaction, efficiency, innovation, employee satisfaction etc.

Hypothesis

Empirical Studies show positive relationship between EI, OP and leadership (Anand & Suriyan, 2010; Esther, et al., 2012). There is high degree of association between transactional leadership and organizational performance (Wei, Yuan, & Yang, 2010). Furthermore, EI acts as a mediatory between performance and leadership effectiveness and leading to effective OP (Hee, Berg, & Wilderom, 2011). Empirical Studies indicate there is positive relationship between EI and OP. EI as a moderating variable resolves issues with work-life balance and increases the employee participation and boost work outcomes (Abraham, 2003). Hence, three hypotheses were proposed

H1; There is positive significant relationship between transactional leadership and organizational performance.

H2; There is positive significant relationship between employees Emotional Intelligence and organizational performance.

H3; Emotional Intelligence moderates the relationship between transactional leadership and organizational performance.

The research model is presented in Figure 1
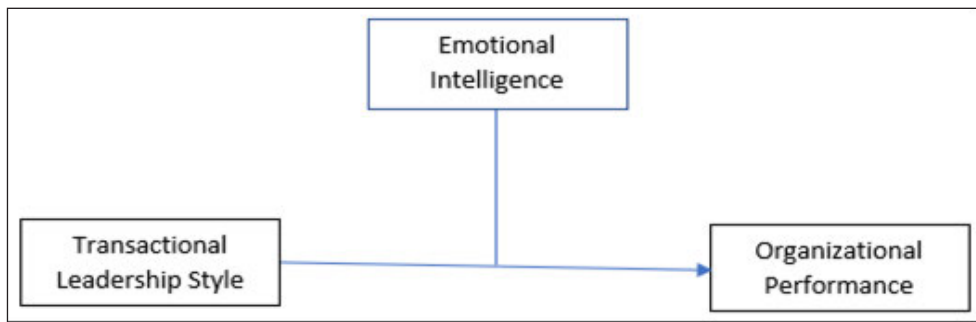
Proposed Research Model

Research Methodology

Data and Sample

5 Point Likert scale questionnaire were used to collect data from Nepalese Manufacturing Industries. To avoid the data deviances and errors while developing the questionnaire the instruments used for data collection was reviewed by the different experts. They were asked to translate the questionnaire into native language i.e., Nepali and again retranslate it into English language for reliability. Constructive feedback was admitted and modification was done accordingly. The population of this study includes all employees working at the managerial/ supervisory levels working at the ten different manufacturing companies located at the Terai region of Nepal. The sample size of this study was determined on the basis of the requirement for using AMOS 23.0 so as

to generate the reliable and valid results. Byrne, (2016) suggested collection of more than 200 samples before using the SEM model. The response rate was 65%, after eliminating the incomplete and inappropriate survey answers, our sample size reached 220 which adequately meets the minimum requirement of Byrne, (2016).

Research Methods and Data Collection;

Hypothesis testing is done with the help of Structural Equation Modelling (SEM) technique such that causal relationship existing in between leadership and organizational performance. AMOS 23.0 is employed. Broadly, SEM is divided into two processes; validating the model and conducting model fit. CFA helps to validate the model and for model fit, we need to study path analysis (Byrne, 2016). Using this two-step approach can help to assures constructs in the model.

Field study was done to collect the feedback from respondents. Five-point Likert-scales anchored by "strongly disagree" and "strongly agree". Moreover, before considering each construct prior research were reviewed. Similarly, the constructs selected are withdrawn from the previous research. The questionnaire was formulated according to the constructs. Their reliability and validity have been successfully tested by previous researchers and peer reviewers.

The factors for TL are taken from the Bass and Avolio Model. The items for emotional intelligence i.e., self-awareness, self-management, social-awareness and relationship management were derived from Salovey & Mayer, (1990); Goleman, (1995) and 20 Scale Items of Organizational Performance developed by Zeitz, et al., (1997). Close-ended questions were used to develop the questionnaire.

Table 1; Demographic Profile of study sample

	Gender	Age	Marital Status	Qualifications
Male	150			
Female	70			
21-30		93		
31-40		17		
41-50		18		
51-60		92		
Married			92	
Single			90	
Unmarried			38	
Bachelors				107
Masters				109
Doctorate (PHD)				4

Brief explanation was done the by the researcher so as to minimize the biases and errors. Respondents were made assured that the information would not be disclosed. Series of discussion were conducted with managers and supervisors before proceeding for data collection. Moreover, the leisure time between the work was used to fill the questionnaire.

As shown in the table 1, 68.20% of people are male and remaining 31.80% are female. 50 % of the sample considered are of the active age i.e., up to 40 years old. Next, 41.80 % are married, 38% unmarried and 40.90 % are single. Similarly, about half of the samples i.e., 48.63 % are of bachelor degree holders working at the various manufacturing companies. 49.50 % had master degree and 1.81% possess doctorate degree.

Data Analysis

Table 2 displays the information related to mean, standard deviations, skewness and kurtosis of the data. These information shows the positive displacement towards the items. All 52 items questionnaire were successfully tested

Table2; Descriptive data of variables

	Mean	SD
TL	4.101	0.708
EI	4.302	0.813
OP	4.201	0.755

Note; TL, Transactional Leadership; EI, Emotional Intelligence; OP, Organizational Performance

With the help of SEM technique, authors studied the effect of TL on OP. For conduction of SEM technique, overall fit of the model should be checked. Table 3 represents the Goodness of Fit (GIF) Indices which explain how well the set of observation matches. Factor loading of final measurement model meets the requirement of ≥ 0.50 and RMSEA value less than 0.10 (Hair J., Marko, Christian, & Siegfried, 2017) except TL1, TL6, LG1, LG2, LG3, IP3, IP4, IP5, F1, F3, SH1, SH4, SH6, SA3, SA4, SA5, SM4, SM5, SM6, SM7, SM8, SOA4, SOA5, SOA6, RM3, RM5 which has a loading of ≤ 0.5. After excluding those values for further analysis, our measurement model exhibits better model fit to the data (as per Table 3)

Table 3; Measurement Model fit Indices

Model	X^2	df	p	X^2/df	IFI	TLI	CFI	RM-SEA
Final	231.011	57	0	4.05	0.901	0.903	0.910	0.09

Table 4; Measurement model properties for TL

Variables	Indicators	St. Loading	AVE	Cronbach's Alpha	Composite Reliability (CR)
Transaction-al Leadership	TL2	0.882	0.780	0.859	0.946
	TL3	0.863			
	TL4	0.844			
	TL5	0.848			

Table 5; Measurement model properties for EI

Variables	Indica-tors	Std. Loading	AVE	Cronbach's Alpha	Composite Reliability (CR)

Self-Awareness	SA1	0.852	0.637	0.797	0.687
	SA2	0.805			
	SA6	0.731			
	SA7	0.800			
Self-Manage-ment	SM1	0.792	0.611	0.781	0.667
	SM2	0.741			
	SM3	0.810			
Social-Aware-ness	SOA1	0.882	0.656	0.808	0.702
	SOA2	0.750			
	SOA3	0.793			
Relationship Management	RM1	0.833	0.657	0.810	0.703
	RM2	0.792			
	RM4	0.806			

Standard Loading below 0.5 are ignored as these values does not contribute towards the construct of the variable. Hence, TL1 and TL6 were omitted items for further study. As suggested by Hair, et al., 2017, Table 4 shows value of CR (0.946) and AVE (0.780) are above the cutoff-value. Furthermore, to measure the reliability and consistency of the scale, Cronbach's alpha is employed which should cross the suggested value of 0.60 (George & Mallery, 2003). Table 4 represents the value of Cronbach's alpha (0.859) which indicate good consistency of data. Moreover, the motive behind calculation of Average Variance Extracted (AVE) was to establish convergent validity.

In the same way, Table 5 also omits the standard value below 0.5. Three items of Self Awareness (SA3, SA4, SA5), five items of Self-Management (SM4, SM5, SM6, SM7, SM8), three items of Social Awareness (SOA4, SOA5, SOA6) and two items of Relationship Management (RM3, RM5) are omitted for further study. Additionally, the value of Cronbach's alpha ranged from 0.781 to 0.810(SA= 0.797, SM= 0.781, SOA= 0.808, RM= 0.810) which proves the sufficient reliability and consistency. Next, CR value of constructs ranges from 0.667 to 0.703(SA= 0.687, SM= 0.667, SOA= 0.702, RM= 0.703) and AVE values ranges from 0.637 to 0.657(SA= 0.637, SM= 0.611, SOA= 0.656, RM= 0.657). As these all values were above the permitted limit and used for further analysis. Furthermore, Table 6 represents the comparison of AVE in diagonal and square of correlation between constructs.

Table 6; Measurement model properties for OP

Variables	Indicators	Std. Loading	AVE	Cronbach's Alpha	Composite Reliability
Learning and Growth	LG4	0.830	0.604	0.675	0.601
	LG5	0.662			

Internal Process	IP1	0.799	0.674	0.933	0.675
	IP2	0.843			
Financial Perspective	FP2	0.870	0.839	0.828	0.833
	FP4	0.960			
Stakeholder Perspective	SH2	0.870	0.709	0.888	0.701
	SH3	0.784			
	SH5	0.870			

Table 6; Comparison with AVE and Square of Correlation between Constructs

Con-struct	FP	IP	LG	SH	SA	SM	SOA	RM
FP	0.837							
IP	0.257	0.875						
LG	0.137	0.34	0.815					
SH	0.235	0.128	-0.077	0.855				
SA	0.144	0.887	0.351	-0.053	0.868			
SM	-0.06	-0.114	-0.208	-0.082	-0.014	0.859		
SOA	0.231	0.315	0.042	0.089	0.35	0.463	0.961	
RM	0.949	0.229	0.142	0.166	0.175	-0.006	0.234	0.855

Note; Diagonal Values are AVE extracted for five different constructs. Off- diagonal values represents squared correlation between constructs.

Testing Hypothesized Structural Model

Three hypotheses were proposed for test in this study. H1 assumes the positive influence of TL on OP but through regression analysis, we found TL did not show direct and significant influence on OP (β= 0.143, p= 0.421). Hence, H1 is not supported. Similarly, H2 assumes positive influence of EI on OP. While conducting the regression analysis EI has a significant influence upon OP (β= 0.613 p= 0.024), Hence H2 is supported.

Moderation Analysis

To explain the moderating role of EI on TL- OP relationship, we applied bootstrapping method (Hayes & Preacher, 2013). Analysis was done on 95% confidence interval with 5000 bootstrapping samples. Hypothesis 3 assumes EI moderates the relationship between TL and OP. Findings anticipated that EI moderates the relationship between TL and OP such that the association is more insignificant (β = 0.128, sig. =0.334). Hence, H3 is not supported.

Results and Discussions

The main aim of this study was to identify the relationship between TL, EI and OP. Three different hypothesis were proposed and overall results shows negative and insignificant effect of TL on OP. EI has a weak moderation over the TL-OP relationship. Generated results were found to be consistent with prior results where EI has weak/ negative effect on OP (Harms & Crede, 2010; Fannon, 2018). This findings helps us to cofirm the weightage of EI towards the organizational performance. As per figure 1, Self Management (EI) positively moderates the direct relationship between TL-OP(Financial)(β= 0.075, p= 0.018) but Relationship management (EI) does not moderates the relationship between TL-OP (Learning and Growth) (β= -0.014, p= 0.663), Self-Awareness (EI) does not moderate the relationship between TL-OP (Stakeholder) (β= 0.035, p= 0.069), Similarly, Self-Awareness (EI) also does not moderate the relationship between TL-OP (Internal Process) (β= -0.019, p= 0.586). There is the inverse relationship between Relationship Management (EI) and Learning & Growth (OP) and also Self Awareness (EI) and Internal Process (OP). In the same way, Transactional leadership style is creating negative and insignificant impact on financial outcomes (OP) (β= 0.012, p= 0.699), Internal Process of Business (OP) (β= -0.206, p= 0.541), Stakeholder (OP) (β= -0.115, p= 0.604) but positive and significant impact on Learning and Growth (β= -0.437, p= 0.020). The positive effect of transactional leadership style on learning and growth but negative effect on financial outcomes, Internal Process and stakeholder signifies that overall outcome of transactional leadership style towards the performance is negative but still transactional leaders possess potential to boost employee skills and abilities

Figure 1; Moderating Effect of Self-Management(EI) on Financial Perspective (OP)
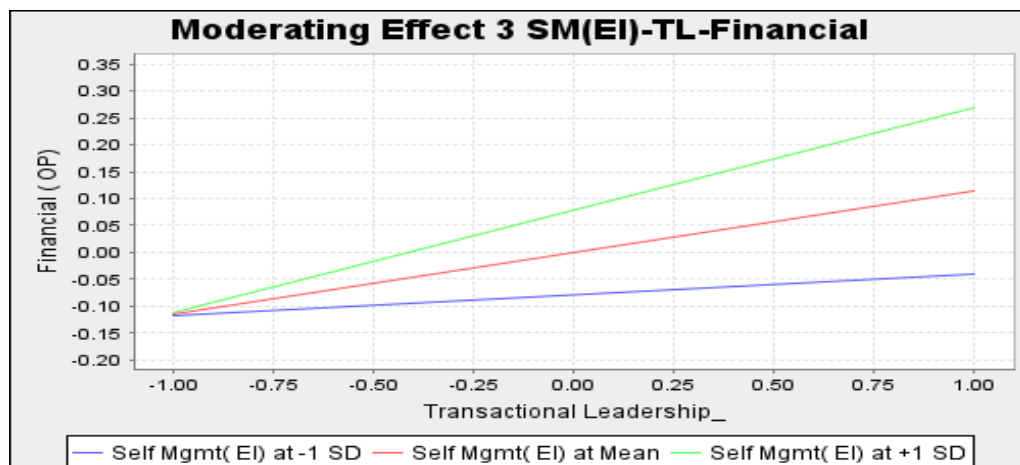
The positive significant effect of Self-Management on Financial perspective signifies that transactional leader should be in position to control the impulsive and hyper behaviors, manage emotions through commitments and adjust with changing circumstances which can effect on financial performance of organization. While making the financial decisions, transactional leaders should be aware about management of emotions. Individuals having high level of self- management bears capability to understand the limitations and weakness of self and team members/department which helps them to identify the training needs and skills required to boost the performance to next level.

Contributions

Its' obvious that investors/managers to be worried about performance of business. Numerous factors influence organizational growth (Bello, 2001),among them OP holds vital position. This study provides crucial implication to the management practitioners. Hiring manager/ staff possessing high level of self-management tend to provide better financial performances. EI has a positive influence on Jobs performance. (Manag, 2020). As Self-management is only one factor that is creating positive effect on financial performance of an organization, this study motivates the higher level of managements to control impulsive feelings and behaviors and manage emotions is healthy ways before taking any financial decision which can create favorable work environment in longer run.

Research Limitations and Future Direction

Apart from employing latest statistical tools and techniques this research still suffers certain limitations. Authors considered employee reported responses for the purpose of analysis hence future researcher may also chose supervisor reported response into consideration and measure deviations. Secondly, this research chose cross-sectional design for data collection, even though there appears scope for longitudinal mode of research on exploring the relationship between TL-OP. Thirdly, future researcher may retest the model on other sector as well like telecom, tourism, retail which can overcome the current sectoral restrictions. Finally, apart from developing countries like Nepal, researcher can choose other countries and also explore other intervening, mediating variables like motivation, Organization citizenship behavior (OCB) existing in between the TL-OP relationship. Furthermore, researcher may choose standard scale of Emotional Intelligence such as SSEIT, MSCEIT and compare and identify the variations behind it.

Conclusion

This study revealed that there exists the weak relationship between transactional leadership and organizational performance. This study helps to determine the moderating role of Emotional intelligence that could poorly contribute to boost organizational performance at overall. In organization managers are found to be more adaptive to change

(Munir, Lestari, Reza, & Usman, 2021). This research suggests hiring and development of managers and staff having considerable Self-Management can contribute towards financial performance. In conclusion our study suggest that Transactional Leadership style creates a more negative impact on organizational performance with the weak moderating role of Emotional Intelligence. In detail, Transactional leadership style produced negative impact on financial outcomes, Internal process and stakeholder but positive impact on learning and growth of organizational performance.

EI acts as a weak catalyst to boost the relationship between TL-OP. Hence, emphasis should be given to identify the other moderating/intervening variables which can boost the organizational performance.

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Annexure

Moderating Effect of Self Awareness (EI) on Internal Perspective (TL)
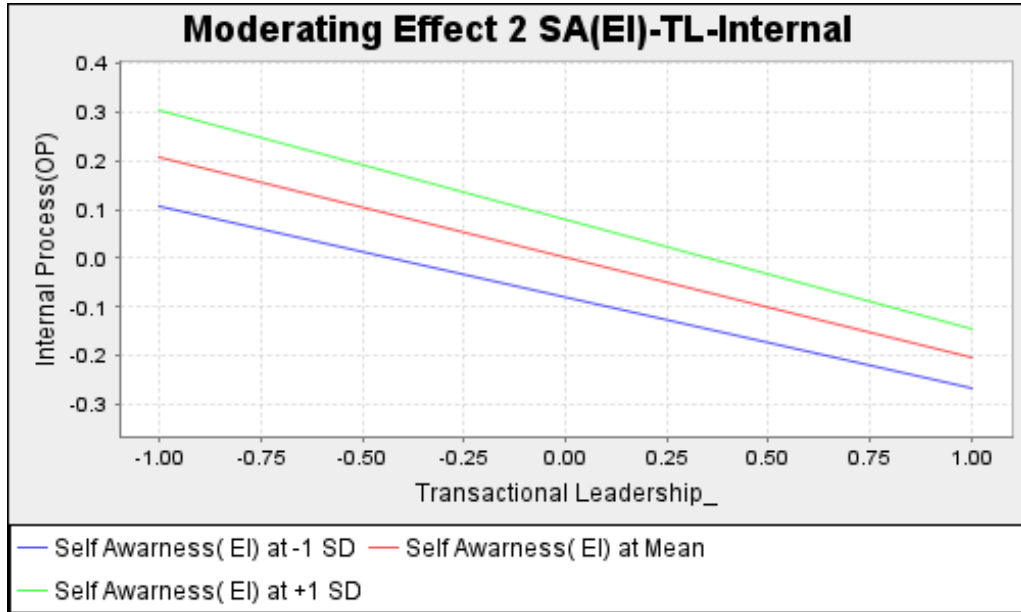
Moderating Effect of Social Awareness (EI) on Stakeholder Perspective (OP)

Moderating Effect of Relationship Management (EI) on Learning Perspective (OP)

Final Measurement model Evaluation Results
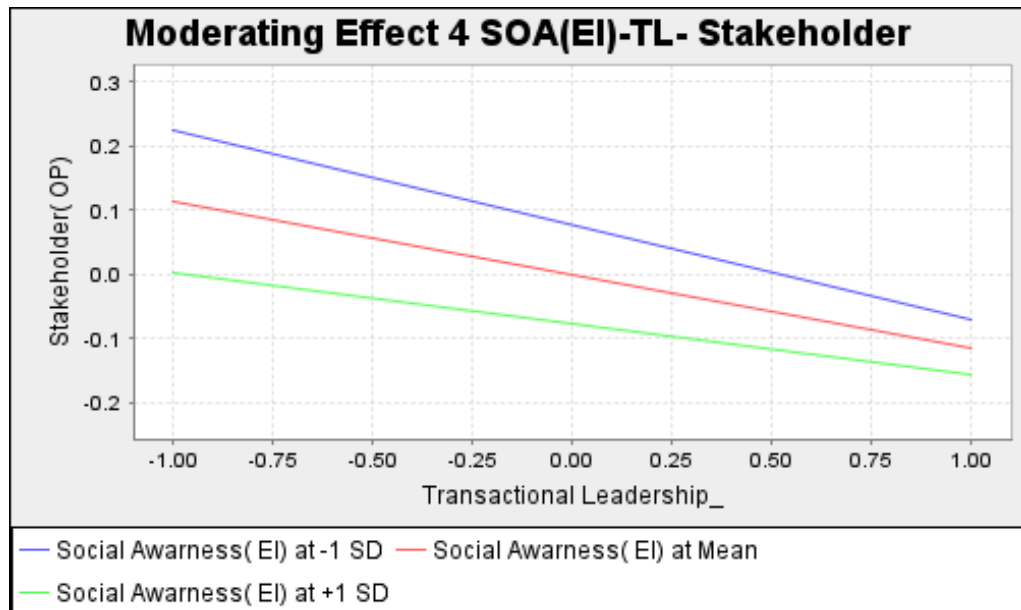
Sustainability of Micro, Small and Medium Enterprises in India during Covid-19

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Abstract

The novel Corona Pandemic has put the world trade and economy in a great crisis. No country is free from the jaws of the deadly virus. It not only causing huge forfeiture of human life but also inducing economic disaster, with a halt in production, a crumble in consumption and a magnified unreliability in stock exchanges. The Covid-19 has severely disrupted the global supply chain system. All the sectors like aviation, tourism, retail, capital markets, oil and particularly Micro, Small and Medium Enterprises (MSMEs) are the most affected with negative repercussion. In the global view, the small businesses are the most sufferers than the big ones as they are vulnerable with lesser resources to redesign to the new social change. The main purpose of this article is to study the present status of Micro, Small and Medium Enterprises (MSMEs) of India and its sustainability amid this pandemic. It will notably discuss the impacts of Covid-19 on this sector and the initiatives taken to regenerate this sector. The study will be based on reviewing the available literatures considering research papers, reports and policy documents. This article comes forward with applicable recommendations for MSMEs facing this epidemic in India.

Keywords. COVID19, Micro, Small and Medium Enterprises of India, Economic crisis, Pandemic, Government support.

1.   Introduction

The worldwide pandemic COVID 19 which was introduced in India in December 2019 now been reached in each and every corner of the country affecting the general life and the economy gravely. As of 23rd July 2021, Ministry of Health and Family Welfare (MHFW), Government of India (GOI) has confirmed 31,293,062 COVID cases and 419,470 death cases (World Health Organisation Report 2020). As this virus is highly transmissible, the strategies to control this infection are maintaining social distancing, home isolation, closing educational institutions, and public amenity, restrictions on unnecessary travel, and lock down of the entire nation. The dimensions of the aftermath of this pandemic depend on the time span and gravity of the health problem. The huge loss of life, social quarantine and fear of infection has generated more horror and distress among the mass inducing mental health crisis. The worldwide health crisis has putting all the economic activities into a halt and leading towards a serious economic crisis. The crash of Corona paves the path to slowdown the domestic demand. This in turn leads to reduction in purchasing capacity due to unemployment or salary cuts and this deferral in purchasing power will have an enduring effect on various sectors including the small businesses. A report by World Trade Organisation (WTO 2020) specified an acute shrink in the global transactions within 13% to 32% in 2020 (United Nations Conference on Trade And Development 2020). The International Monetary Fund (IMF 2020 June) has also outlined that the Gross Domestic Product (GDP) growth rate of Indian economy fall to 1.9% in 2020. The repercussions of Corona virus showed as an upswing in the worldwide unemployment within 5.3 million to 24.7 million indicating that "sustaining business action will be troublesome for SMEs" (International Labour Organization 2020). A report by World Investment reveals, in 2020 a reduction up to 40% in worldwide foreign Investment which is further estimated to fall by 5%-10% in 2021(UNTCAD 2020). The World Trade Organisation (WTO) estimated that a total decline of 32% in the quantity of international transactions in 2020(Organization for Economic Co-operation and Development 2020, UNCTAD 2020). The MSMEs are the worst sufferer than the large companies due to their smaller size of operations and low digital access as they are unable to embrace new social change. Therefore it is important to support these sectors by the Governmental policy measures and financial sector.

MSMEs act as a strong pillar of national system due to its endowment in terms of production, job creation and exports (MSME 2018-19). It accounts for the socio-economic enhancement of the nation by cultivating business environment and creating enormous job opportunities at comparably smaller capital expenses. These sectors perform like a supportive system to large scale companies and pave the path for industrialisation. As stated in the recent reports MSMEs account nearly 30% of the Gross Domestic Product (GDP) and 45 % of manufacturing outputs. It accounts for the production

of over 8000 products in the country (MSMEs report 2018-19). As per a survey the Ministry of Statistics & Programme Implementation 2015-16 stated that total 633.88 lakh business ventures are there in MSMEs in India involved in various economic operations (MSME report 2018-19). The Table 1.1 shows the distribution of enterprises in various activities and the number of workers engaged in various activities.

(Compiled by the author using the data source – Annual Report of MSMEs of India 2018-19, Government of India)

The above table revealed that about 633.88 lakh enterprises are there in MSMEs involving in various economic operations (196.65 lakh in manufacturing, 0.03 lakh in electricity, 230.35 lakh in trade and 206.85lakh in other services)(MSME 2018-19). This sector engages 1109.89 lakh workers which accounts 21% of the total employment. The micro enterprises have occupied 95%, Small 4.8% and medium 0.02% of the total number of enterprises in MSMEs of India.

The United Nations Conference on

Table 1. Distribution of enterprises and employment in various activities:

Activity Category	No. of enterprises (in lakh)	Share (in %)	Employment (in lakh)	Share (in %)
Manufacturing	196.65	31	360.41	32
Electricity	0.03	0	0.07	0
Trade	230.35	36	387.18	35
Other services	206.85	33	362.22	33
Total	633.88	100	1109.89	100

Trade and Development (UNCTAD) stated that developing nations like India would be strongly damaged by the worldwide virus of COVID-19 (UNCTAD 2020).Consequently; it is indispensible to access the repercussions of COVID-19 on MSMEs and its sustainability in India. This pandemic will badly hit the economic activities as MSMEs are hugely relying on the liquidity, which in turn detrimentally influenced by the epidemic. (Shafi 2020, Williams & Schaefer, 2013). Along with, other complications are the inadequacy of manpower, slackening in productions, paucity of resources, and transport limitations. Sequentially, this will have a magnificent influence on the domestic economy. MSMEs which is considered as the pathway to achieve Sustainable Development Goals will go through the crisis due to this Pandemic and will be questionable on these points: What are new dawns for MSMEs?, How will it work in future? What will it learn from this crisis? Hence, a tough policy

measures are necessary to neutralize the obstructive impact of COVID 19 and strategic plan and action are required for restructuring this sector. This paper will be helpful for the professionals and policymakers in finding the methods to deal with this crisis.

2. Impact of COVID 19 on SMEs: A Global View

Globally 95 per cent of businesses are MSMEs, constituting 60 per cent of the global job creation, as per the report of World Trade Organisation 2016. In developing nations, this sector contributing 35 % of GDP and about 50 % of GDP in advanced nations (Chaudhary 2020). Hence MSMEs are important for generating employment and mass production. Majority of MSMEs are participating in global transactions either to export their products or to import inputs (WTO 2020). The breakout of this COVID 19 has hit adversely the world GDP between 2.3% to 4.8% (Asian Development Bank 2020). Besides, this may lead foreign direct investment to decline by 5%– 15%. (WTO 2020; UNCTAD 2020).Therefore the global economy requires a financial assistance of up to $2.5 trillion to deal with the defacement due to this pandemic. (Shafi 2020,UNCTAD 2020). The International Trade Centre (ITC) while conducting a study on SMEs revealed that two-thirds of small businesses acknowledged that their business activities are severely affected and one-fifth acknowledged the permanent closure of their operations within three months (ITC 2020). According to the studies conducted by various countries evidenced that between 25% and 36% of small businesses could shut down forever in first few months of the pandemic. Nearly 90% of small enterprises accomplished a tough (51%) or average (38%) adverse effect from this influenza; 45% of enterprises underwent supply networks disruption; 25% of enterprises have liquidity problem. (Buffington et al.2020, OECD report 2020)

The novel COVID 19 affects the economy in numerous ways. On the supply side, businesses undergo a decline in manpower due to the lockdown and social distancing which further aids in major fall in capacity usage. Additionally, supply chains are disturbed causing scarcity of raw materials. On the demand side, the capability of SMEs to produce or work affected by the deficit in demand and revenue which leads to decline in liquidity. Furthermore, consumers facing decline in income, panic for the disease and raising uncertainty leads to fall in consumption and expenditure. These further heightened as many workers are losing their jobs and the companies are not in a position to give them salaries.

According to OECD report, this Pandemic has severely affected the various sectors differently like transportation, manufacturing, wholesale and retail, trade, air transport, hotels and restaurants, real estate and other services. Out of which 76% of businesses dealing in hotel and restaurants vigorously influenced by COVID 19 as a result of restricted and whole lockdown (OECD 2020).

Next to it, the enterprises engaged with non-food industry, retail sector and wholesale sector and voyage and transportation are specifically influenced, resulting in declined operations and customer trust. Besides, Small and Medium Enterprises are also facing the problem of smaller strength and elasticity in dealing with the costs. The present situation leads to a sudden change in the process of work through digital society and innovation of new technology which is costlier for the SMEs to adapt (OECD report). This pandemic also hampered the male and female-led business heterogeneously. A major part of the female-led enterprises are severely hampered dealing in hotel and restaurants and retail and wholesale. Around 64% of female-led businesses were strongly affected compared to 52% of companies led by men (ITCSMECO2020). Young firms were also at a greater possibility of forever shutdown their operations. About 26% of young companies and 18% of old companies reported that they faced forever closure of their operations within three months due to the pandemic-induced bankruptcy. The businesses which are unorganized (informal) in nature will also undergo permanent closure accounting 90% of the businesses in African and Asian countries leading to socio-economic repercussions as they are inefficient to reach the economic incentives as unregistered entities.(ITC 2020). SMEs are also disturbed through the disruptions in supply chain. The SMEs which are highly in connection with the Global Value Chains (GVC) are solely affected through the scarcity of raw materials or through trade. According to the OECD report 2020, a study conducted by Korean Federation of SMEs stated that more than half of the enterprises that is 71.8 % affected by the pandemic as they were incapable to export due to company shutdown in China (OECD 2020, WTO 2020). The below table will show how the global big manufacturing companies shifted their production for resilience and sustainable in the business to overcome the effect of this novel crisis.

Table 2. World's leading manufacturing firms earlier and amid COVID19:

Companies	Industry	Before COVID manufacturing	During COVID manufacturing
Ford	Automobile manufacturing	Vehicles	Respirators and Ventilators
Tesla	Automobile manufacturing	PV Cells and Vehicles	Ventilators
Airbus	Aircraft manufacturing	Aircraft	Ventilators
Zara	Fashion	Apparel	Surgical masks
Bacardi	Alcohol	Rum	Hand Sanitizers

Gucci	Apparel	Clothing	Masks
Indian Ord-nance Factory	Defense	Defense Equip-ment	Ventilators

(Data Source: Kumar 2020; World Economic Forum 2020)

The above table revealed that most of the leading manufacturing companies in the world are shifting their production strategy which is needed during this pandemic. They are shifting their production from non-essential products to essential products. They are flexible enough to meet the pandemic based necessities.

3. Impact of COVID 19 on MSMEs: An Indian view

In India, MSMEs set the foundation of the economy as per its endowment in terms of output, employment generation and exports. Despite its major contribution, this sector undergo some hindrances in terms of scarcity of resources, lack of infrastructural facilities, lack of modern technology, forward and backward linkages, difficulty accessibility to capital and credit, delayed payment etc. Along with these difficulties, the outbreak of Corona pandemic had putting the MSEMs into a halt. MSMEs are directly or indirectly affected by the environmental disaster. Fatalities, supply chain disturbance, property scarring and decline in the stock are the direct consequences where as hindrance in general infrastructure such as power supply, communication and transportation system, leads to rise in the production expenses and closure of companies are some of the indirect reverberations of the disaster. (Shafi 2020; Asgary et al. 2020; Eggers 2020; WTO 2019). All India Manufacturers' Organization (AIMO 2020) in relation with nine other companies through a study revealed that one third of the self-employed, small and medium enterprises were closed down (Unni 2020).

The worldwide shutdown due to this Pandemic left the MSME companies, entrepreneurs and shareholders in uncertainty. Extended isolation owning to lockdown adversely affected the supply of goods, acquisition of basic material and availability of labour force, production and supply operations along with dues repayment, remunerations/ salaries, authorized debts etc. These sectors are majorly affected through the economic implications because of inadequate economic assets and loan availability. MSMEs are also dealt with trade limitations on agricultural outputs due to social outstrip. Thus the agricultural sectors undergo serious loss. The adverse effect of COVID 19 on commercial market stated that MSME merchandising gap of US dollar 1.5 trillion every year (calculated by the Asian Development Bank) is expected

to rise (WTO 2020). This imposes an adverse impact on the emerging nations where the trade gap can severely affect the opportunities in trade. (WTO 2020). Various surveys showed that the supply chain disruptions due to the COVID 19 had lowered the MSMEs returns by 20-50%. MSMEs were severely hit due to the liquidity crisis. There is a better opportunity for MSMEs dealing with the necessary commodity business which are indispensible during this pandemic. Some businesses are also transferring their production from unessential commodities to indispensible commodities; like production of hand sanitizer and toiletries, PPE kits, recyclable masks, etc. and are able to continue their business in this pandemic. MSMEs in the rural and faraway areas are facing more problems due to the supply chain disruptions and the new normal social distancing (Times of India 2020). A report by the Federation of Indian Chambers of Commerce & Industry-Youth Enterprise Scheme Bank revealed that Indian Touristy sector contributing 9.2% to GDP and had accomplished US $247.3 billion in 2018, generating 26.7 million employments. At present it is the 8th vast nation with regard to its endowment to GDP and planning to create 53million jobs by 2029(Chaudhary2020; JaganMohan 2020). But this Corona pandemic had restricted the international mobility thereby affecting this sector to a great extent. The aviation sector contributing US $72 billion to India's GDP had fallen in the first few months of this pandemic. Similarly in 2019 Indian Rail transport accounted for US $27.13 billion to GDP which will fall down to US $1.56 billion due to the lockdown (Chaudhary 2020). On the other hand the Indian Retail industry which accounting 10% of the GDP and 8% of employment has shown a 30% growth in online retail in 2020 (Chaudhary 2020). Participating in Global value chains, MSMEs involving in manufacturing sectors are exporting more products than the large firms including tools and technologies, publishing and printing products, paper-based products and transport materials(WTO 2020). All these sectors experienced an adverse impact due to supply chain disruption in this novel pandemic (WTO 2020). The Confederation of All India Traders (CAIT) constituting 70 million dealers in India and most of them are MSMEs. The trade effect is calculated to be Rs 380 lakh and the chemical sector is calculated to strike at Rs 12 crore 90 lakh (Mishra 2020). The ILO had stated that this pandemic is the worst worldwide crisis which leads to lose 195 million regular jobs which will deteriorate the economic condition of the low paid, unskilled and vulnerable workers. (ILO 2020)

4. Policy measures supporting MSMEs for its Revival and Sustainability

The outbreak of the Pandemic has put the world economy into a recession. Therefore joint collaboration is required from the frontlines of international teams, private sectors, and national Governments to fight with the pandemic on one side and sustaining the economic activities to hold up the live and livelihood of the global society on the other. The

budgetary policy measures are taken to alleviate the impact of COVID 19 (World Bank 2020). According to the WTO Report 2020; the following measures taken by the WTO members during the crisis include: (i) urgent stimulus and backdrop measures to meet the finances by MSMEs such as payment deferrals and reductions, loans, wage financial support etc. (ii) Trade broadening measures for MSMEs involving in trade which includes deferrals and reduction in trade related payments(custom duties, freight fees, export credits etc).(iii) measures to enhance business surroundings such as easing of commercial obligations like deferring tax declarations and tax audits, simplified registration procedures etc. (iv) Long term measures (resilience measures) such as adoption of digital technologies through e-commerce and information and communication technologies in order to resilience in this crisis. Other measures taken includes transparency in trade practices, free and open trade, trade finance and collaboration with private sectors with MSMEs will go a long way in order to sustain in this pandemic (WTO MSMEs report 2020).

According to OECD Report 2020, some of the countries have introduced SME policy measures including,

• Shortening working time, temporary cutback and sick leaves,

• Deferral of tax, social security payments, debt payments and rent and utility payments (OECD 2020).

• Simple provision of loan guarantees,

• Provision of grants and subsidies to SMEs

• Direct lending,

• Non-banking financial support intermediaries,

• Monitoring the impact of crisis and better governance,

• Structural policies including new method of working, digitalization and finding new markets etc.

India requires reconstructing its trade policy and reform to enhance its exports and especially its MSMEs to sustain which will way forward for the economic recovery of the nation. The PM has announced the proposed stimulus of Rs 20 lakh crore relief packages for making Atma Nirbhar Bharat. The Finance Minister declared the measures for the restructuring the MSMEs as follows:-

• Revision in the definition of MSMEs:

The revisions are in the form of (i) withdrawal of the distinction between manufacturing and service enterprise, (ii) increasing the upper limits for investments in plants and machinery to be certified as a MSME and (iii) starting 'turnover' as a new criterion.(Nagaraj 2020). This has shown in the table:

Table 3. Revision in the MSMEs Definition:

	Existing		Revised	
	Manufacturing	Service	Investment	Turnover
Micro	25lakh	10lakh	1crore	5crore
Small	5crore	2crore	10crore	50crore
Medium	10crore	5crore	50crore	250crore

(Source: Nagaraj 2020)

The definition of MSMEs has changed in order to eliminate inflation and enabling firms to obtain economies of scale and escaping the breaking down of businesses. The change has been occurred in order to meet the demand of large firms where the investments in machinery are not high but because of costly materials, their turnover is high (Unni 2020).

- Financial and other assistance for MSMEs include:

✓ Rs 3 lakh crore collateral free loans. Banks and Non Banking Financial Corporations will offer 20% of the borrower's total outstanding credit up to Rs. 25 crore as on a cut-off date of 29 February 2020.

✓ Rs 20,000 crore subordinate debt for stressed MSMEs. The Ministry of MSMEs introduced the Credit Guarantee Scheme for Subordinate Debt (**CGSSD**) also known as 'Distressed Assets Fund– Subordinate Debt for MSMEs'.

✓ Rs 50,000 crore equity infusion through MSMEs fund of funds which will directly invest in MSMEs and encourage them to list on the Indian stock exchanges.

✓ There will be no global tenders for Government tenders of up to Rs 200 crore in orders to motivate domestic resilience.

Clearing MSMEs dues.

5. Policy Recommendations

The COVID 19 has adversely affected the worldwide economic and the supply chain systems leading to interpret the economic activities (production, consumption and trade) of various sectors. Therefore it is very important to think about the resilience and sustainability of MSMEs. The Government should provide stimulant to the production system along with reframing the Global manufacturing policies and adopting digital manufacturing and innovative technologies in production process. To control the virus, a strong co-ordinated

effort is needed among the Government, producers, manufacturers, institutions and NGOs. The production and consumption figure should be properly managed through the information technology. Both the entrepreneurs and the customers should have updated knowledge about the present status of the business, working time and online/delivery based choices (Shafi 2020). Small businesses should switch to produce essential commodities instead of unessential. Businesses should adapt to the social media in order to analyse the behaviour and consumption pattern of customers. During this pandemic it is very necessary to protect the life and wellbeing of employees. "Vocal for Local" –domestic production should be encouraged to make India self-reliant. This sector should trick fully utilized the liquidity releasing from the Government's relief packages. Proper allocation of liquidity is required on the part of MSMEs during this situation (Rakshit 2020). It will assist to evaluate its fixed and variable costs thereby representing its financial status. It is important for MSMEs to remodel and redesign its working process strategically. MSMEs should follow the national guidelines of social distancing to get hygiene environment. The government should allow trade as much as possible with proper precautions in this pandemic in order to boost the economy and should provide online banking and offline services. The Government should provide income and employment facilities to the small businesses during this crisis. The companies should look for other opportunities, explore new products, new market in order to come out from this crisis. The small business should keep good relations with other firms. The small firms should minimise the repercussions through avoiding huge losses. The small firms should build resilience capacity to regenerate their business as they unaware of such disruptions earlier. A start-up management plan should come up to support MSMEs. They can build resilience through learning from previous experience and constant evaluation of the situation. The small business should develop a business network plan suitable for alternate choice for raw material, distributors and administrative service providers etc. for facing such disturbances (Kumar 2020). Besides emergency loans, the Government should come up other relief measures and employee wage for the formal MSMEs and cash transfers, social protection measures for the informal MSMEs (Webinar, Division for SDGs, UN DESA). On the positive side, the COVID-19 has improved the environmental quality of living but on the other side affect the life and economy to great extent. Environmental sustainability is not only the requirement but the government and researchers should give emphasis on enhancing the socio-economic and environmental sustainability and resilient supply process (Kumar 2020).

6. Conclusion

MSMEs are considered as the main engine of economic growth. This sector constitutes 50% of the total enterprises contributing 50% to GDP growth rate and generating 70% of total employment in emerging nations

(International Council for Small Business report on MSMEs 2020). It acts as a dynamic sector towards the goal of achieving sustainable development through poverty alleviation, employment generation, reducing regional disparity and industrialization. It is the central unit of innovation and entrepreneurship. But the prevailing Pandemic COVID 19 has putting upside down the human and economic life leading to a global crisis. The sweeping effects of this Pandemic have putting the whole world into a disaster. It has disturbed the whole economic system through supply chain disruptions affecting all the sectors including MSMEs. The new norm of social distancing and lockdown leads to serious closure of most of these businesses. The major problems faced by this sector amid Corona are financial, supply chain disruptions, demand fall and fall in sales and profit. Thus MSMEs has to fight back in this economic crisis through remodelling its strategies in a multi dimensional way and welcoming new social change for its resilience. Digitalization, technology and innovation will go a long way in promoting the sustainability of this sector. However every setback brings about new possibilities to reorganize for the betterment of live, livelihood and the nation. India needs to remodel its development plan through equal access to health and education and better allocation of resources. The joint effort of the International organizations, national Governments and financial sectors will go a long way to retaliate the present situation. It is unknown when the normal situation will prevail; MSMEs should strategically implement their economic project and plan in their business. This paper is an attempt to elucidate the repercussions of COVID 19 on MSMEs and its sustainability and will helpful to the policymakers and researchers in order to curb the risk of uncertainty and minimize the burden on MSMEs to resume back their operations. Yet this study has some limitations which can pave the path for further research. This study has further scope to review the impact of COVID 19 on informal segment of MSMEs extensively and the sustainability of women in MSMEs during this Pandemic.

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Impediments to Public-Private Partnership Projects In Aftermath of Covid-19 Pandemic

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Abstract

India has enjoyed impressive economic growth over the past two decades. The country possesses the world's second-largest road system, fourth-largest rail system, and fifth-largest electric power generating manufacturing capability. Despite progress and good prospects for the future, investors continue to face many challenges, which have worsened after Covid-19. Nearly 90% of the world's population has faced travel restrictions, a sharp decline in the global economy during the Covid-19 pandemic. There had been significant downward trend in the infrastructure investment during Pandemic, keeping in view the slowdown of private investment in infrastructure; the present study was carried out to investigate the complexities in PPP infrastructure projects by looking at the elements that impede the successful implementation of PPP in India. The study relies on primary and secondary data. To better understand the constraints to PPP implementation, a questionnaire survey was performed to collect the viewpoints of partners who have a good grasp of the PPP concept and have worked on PPP projects in India. There was a total of 94 valid submissions. The overall findings show that the top five challenges for speeding PPP in India are 'Inefficient and inequitable risk allocation in PPPs,' 'Over leveraged debt and paucity of equity,' 'Weak regulatory and institutional frameworks,' 'Delay in issuing clearances by authorities,' and 'Land selection and acquisition.'

Keywords

Finance, Infrastructure, Projects, Public Private partnerships (PPPs).

1. Introduction

The importance of adequate infrastructure for economic development has been extensively documented in the literature. (World Bank, 1994; Arndt, 1999). The need of substantial infrastructure investment based on a mix of public and private investment has been emphasised, with the latter having been widely implemented through various types of PPPs in European Union, North American, Southeast Asian, and African countries during the preceding two decades. Not only at the union level, but also at the state level, efforts in India to stimulate private infrastructure development through the PPP approach have been a major success. Many PPPs have taken off, and many are currently operational at the national and state levels (Nataraj, 2014).

Public-Private Partnerships (PPPs) aims to offer people with high-quality, cost-effective real estate services. PPPs allow the public sector to benefit from commercial dynamism, the ability to obtain finances in a budget-constrained situation, innovation, and efficiency by bringing in private sector investors who contribute their own resources, skills, and knowledge. The private investor is able to put money to greater use (Skietrys et al. 2008).

India has a long history of successful PPP initiatives that benefit the general people. However, there are barriers to the effective execution of PPP projects, such as the risk of project default, projects completed at a greater cost to the government, and projects wherein return on investment is not attained (Cheung et al., 2009). The pandemic also has had a significant impact on demand for infrastructure services, causing many assumptions that underpin PPP risk allocation and revenue generation to crumble. COVID-19 have a significant short-term impact on many PPPs due to physical restrictions on movement and consumer confidence, and a long-term impact due to decreases in income (and thus demand for services) and changes in consumer behaviour.

The increasing relevance of PPP implementation, and the presence of restrictions in its execution during COVID-19 in India, prompted the researcher to conduct the current study, which strives the viewpoint of crucial PPP players, with an emphasis on the major disruptive factors in the success PPP implementation. The current investigation has two specific goals. First, it attempts to investigate the significance of variables that impede the successful implementation of PPP in India. Second, it seeks to study variations in stakeholders' assessments of the impediment factors. The study's findings will help practitioners improve PPP implementation by eliminating or minimising the negative factors that impede the benefits of using PPP. The financial losses incurred by the Project Company as a result of COVID-19 should be fairly assessed. If the government's policy decision is to keep the service and the project running, the contract's financial equilibrium may need to be rebalanced. Furthermore, understanding stakeholder perceptions is critical because successful PPP implementation necessitates

commitment from the contracting parties.

2. Objective of study

The purpose of this study is to investigate the difficulties in implementing PPP by examining the factors that impede the successful implementation of PPP in India. To investigate the differences in stakeholders' perceptions of the impediment factors

3. Methodology

To achieve the study's goal, an empirical A questionnaire survey was carried out to evaluate the difficulties associated with adopting PPP in Indian building projects. Questionnaires were distributed to individuals from both the public and private sectors. The respondents were chosen based on the criteria that they possessed sufficient understanding of the PPP concept and had been involved in PPP projects throughout the planning, tendering, building, operating, or maintenance phases. Cheung et al. (2012) used similar selection criteria in a study.

Targeted respondents were requested to score their degree of agreement with each of the identified problematic elements on a 5-point Likert scale (1=least important, 5=most important). A covering letter explaining the aims of the research and assuring respondents of the privacy of the data provided followed the questionnaire. One hundred forty respondents were contacted, and 94 completed questionnaires were collected. This accounted for 73.33 percent of the total, which is significant enough to provide a foundation for valid and reliable conclusions. The collected data was presented in tables and analysed using Microsoft Excel 2007 and SPSS.

1. Public sector inefficiency to successfully execute PPPs
2. Confusion over government objectives and evaluation criteria
3. Rehabilitation and resettlement of project-affected persons;
4. Inefficient and inequitable allocation of risk in PPPs
5. Weak regulatory and institutional frameworks
6. Strong public opposition to some privatized projects
7. Higher charge to direct users
8. Lack of experience and appropriate skills
9. Inadequate diligence and appraisal by lenders
10. Force majeure in PPPs
11. Gap between the policy of central government and implementation by local government
12. Land selection and acquisition
13. Lack of coordination between government ministries/departments
14. Delay in issue of clearances by authorities
15. Over-leveraged debt and paucity of equity
16. High customs duties on infrastructure equipment
17. Aggressive bidding by developers

3.1 Calculation of Relative Importance Indexes

Shash A.A (1993) used the Relative Important Index (RII) approach to

examine the data in order to assess the relative difficulty factor in PPP projects To calculate the rankings of the various elements, the previously described five-point scale was translated into relative significance indices for each factor. These rankings allowed for a comparison of the relative importance of the elements as assessed by the respondents.

The relative importance index (RII) was calculated using the formula:

Relative importance index = Σ W / (A x N)

Where W denotes the scores assigned by respondents to each variable and, range from 1 to 5. 'A' denotes the maximum weight (in this example, 5) and N is the total number of responders. The Relative Important Index value will range between 1/A (=0.20) and one.

4. Data Analysis and Discussion

Hundred and Forty respondents were contacted out of which a total of 94 completed questionnaires were collected, as shown in Table 2, 31 (33 per cent) engaged in the public sector 25 (27 per cent) engaged in the private sector, 18 (19 per cent) and 20 (21 per cent) from Govt./semi Govt and Research & Academic respectively

Source: compiled by author from literature

The sample of respondents comprised professional individuals from infrastructure industry. According to Table 2, 66% had more than five years of work experience, with over 28% having more than ten years of industrial experience. Overall, the respondents' backgrounds indicate their reliability in giving relevant data for the research.

Table1. Evaluation of Challenging factors in execution of PPP in construction projects

Type of organisation	Frequency	Percentage
Public	31	33%
Private	25	27%
Govt. /semi Govt	18	19%
Research & Academic	20	21%
Total	94	100%
Years of working experience	**Frequency**	**Percentage**
0-1	13	14%
1-5	21	22%
5-10	34	36%
Above 10	26	28%
Total	94	100%

Source: compiled by author from literature

4.1 Overall perception concerning the challenges of PPP

As indicated in Table 3, the mean scores of the seventeen barriers factors range from 4.1 to 2.93, indicating that each element is of varying relevance as seen by the total respondents as well as by each set of respondents as a limitation to the effective implementation of PPP in India. The two sub-sections that follow address the results of the overall respondents and the variations in perceptions across the categories of respondents, respectively.

4.2. Analysis of Variance

One-Way Analysis of Variance (ANOVA) was used to measure perceptions about challenges of PPP mode, Having enough understanding in the domain of PPP projects, experience in conducting PPP research, or having closely studied the growth of PPPs among diverse interest groups Following an examination of the respondents' perceptions of

Table 3. Mean Score, Relative importance index and ranking of challenging factors in PPP construction projects.

S.No.	Major Impediments	Mean	Std. Devation	Index	Rank
1	Inefficient and inequitable allocation of risk in PPPs	4.1	0.893	0.82	1
2	Over-leveraged debt and paucity of equity	4.05	0.834	0.81	2
3	Weak regulatory and institutional frameworks	3.93	0.997	0.78	3
4	Delay in issue of clearances by authorities	3.83	0.851	0.76	4
5	Land selection and acquisition	3.77	1.031	0.75	5
6	Force majeure in PPPs	3.67	0.998	0.73	6
7	Charge to direct users	3.6	1.034	0.72	7
8	Aggressive bidding by developers,	3.53	1.023	0.70	8
9	Gap between the policy of central government and implementation by local government	3.46	1.074	0.69	9
10	Lack of coordination between government ministries/departments	3.18	1.126	0.64	10
11	Public sector inefficiency to successfully execute PPPs	3.17	1.023	0.63	11
12	Confusion over government objectives and evaluation criteria	3.14	1.084	0.62	12
13	Strong public opposition to some privatized projects	3.11	1.042	0.62	13
14	Rehabilitation and resettlement of project-affected persons	3.09	1.206	0.61	14
15	Lack of experience and appropriate skills	3.05	1.265	0.61	15

| 16 | Inadequate diligence and appraisal by lenders | 2.93 | 1.148 | 0.58 | 16 |
| 17 | High customs duties on infrastructure equipment | 2.8 | 0.946 | 0.56 | 17 |

Source: compiled by author from literature

Table 4. Analysis of Differences between the groups with respect to Perception of challenges of PPP

Challenging factors	Public	Private	Govt. /semi Govt.	Research & Academic	Total	ANOVA	
						F-value	Sig. level
Public sector inefficiency to successfully execute PPPs	2.87	3.52	2.89	3.45	3.17	2.993	**0.035**[**]
Confusion over government objectives and evaluation criteria	2.94	3.56	2.5	3.5	3.14	5.027	**0.003**[*]
Rehabilitation and resettlement of project-affected persons	2.94	3.16	3.44	2.9	3.09	0.877	0.456
Inefficient and inequitable allocation of risk in PPPs	4	4.12	4.06	4.25	4.1	0.329	0.804
Weak regulatory and institutional frameworks	3.74	4.12	3.78	4.1	3.93	1.003	0.395
Strong public opposition to some privatized projects	3.26	2.88	3.22	3.05	3.11	0.699	0.555
Charge to direct users	3.48	3.6	3.67	3.7	3.6	0.213	0.887
Lack of experience and appropriate skills	3.1	3	2.61	3.45	3.05	1.437	0.237

Inadequate diligence and appraisal by lenders	3.48	3.68	3.72	3.9	3.67	0.739	0.531
Terrorism and guerrilla attacks	3	3.28	2.61	2.65	2.93	1.712	0.17
Gap between the policy of central government and implementation by local government	3.39	3.56	3.11	3.75	3.46	1.248	0.297
Land selection and acquisition	3.81	3.68	3.72	3.85	3.77	0.125	0.945
Lack of coordination between government ministries/departments	3.03	3.32	2.89	3.5	3.18	1.256	0.294
Delay in issue of clearances by authorities	3.68	4.2	3.33	4.05	3.83	4.965	**0.003***
Over-leveraged debt and paucity of equity	4.13	4	3.89	4.15	4.05	0.434	0.729
High customs duties on infrastructure equipment:	2.68	2.88	2.78	2.9	2.8	0.304	0.822
Aggressive bidding by developers,	3.58	3.44	3.61	3.5	3.53	0.129	0.942

Source: compiled by author from literature

problems, as shown in Table 4, it is sought to determine whether there is any substantial variation in perception across stakeholders.

From above Table 4, it is observed that out of 17 factors, only 3 factors were perceived differently by the four groups of respondents. The three factors i.e., Public sector inefficiency to successfully execute PPPs, Confusion over government objectives and evaluation criteria and Delay in issue of clearances by authorities are perceived differently among public, private,Govt. /semi Govt and Research & Academic respondents

4.3. Repeatedly issues and challenges of PPP in India

Table 2 and figure 1 depicts that the top five constraints in implementation of PPP approach in construction projects based upon the perception of respondents. Out of seventeen factors, the five factors, 'Inefficient and inequitable allocation of risk
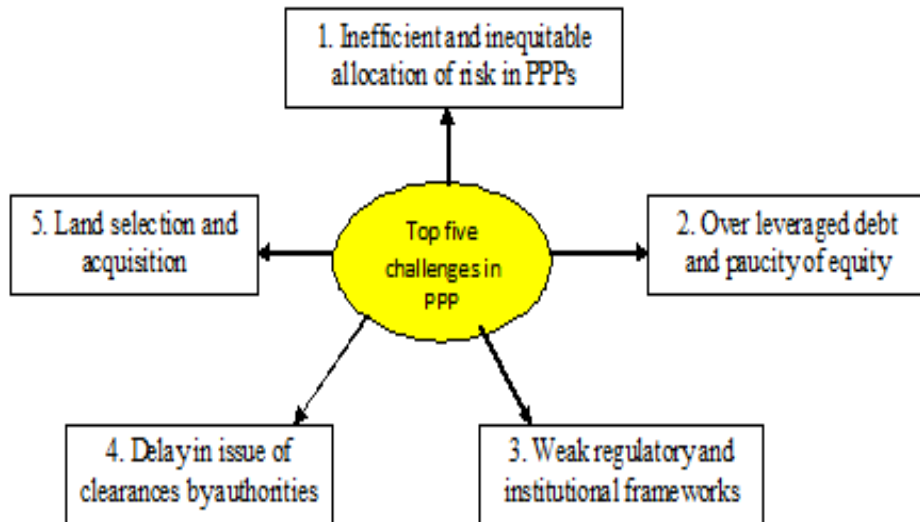
in PPPs', 'Over leveraged debt and paucity of equity', 'Weak regulatory and institutional frameworks', 'Delay in issue of

Figure 1. Top five constraints in implementation of PPP approach

clearances by authorities' and 'Land selection and acquisition', were perceived as the significant challenges in using PPP approach.

1. Inefficient and inequitable allocation of risk in PPPs:

According to Payson and Steckler (1996) "Public-private partnerships are often described as innovative, collaborative undertakings in which the public and private sectors share the risks, responsibilities, and rewards". Distribution and allocation of risk is a major concern in the management

of risk in PPP. (Li, B., Akintoye. A.Edwards, P.J. Hardcastle C. 2005). A fundamental indicator of assignment between the public and private sectors is highlighted risk allocation. It is crucial that the risk distribution is entirely communicated as well as understood among the parties. According to Shen, L.Y., Platten, A., Dang, X. 2006, "Risk allocation being one of the advantages of PPP because public and private sector enable to share the risk."

Additionally, risk allotment in public-private setup is linked with contract negotiation; the outcome of the allotment is a crucial requirement for the successful development of PPP projects. Wang, W., Dai, D. (2009) stated in their study there are 3 principles in structuring PPP projects; Public sector sponsor must point out the main risks, analyse the degree of acceptability of each risk and distribute risk among the parties involved. Formal risk management has been an increasingly important aspect of the construction project management activity in recent years. It is critical to project success in that it provides a technique for maintaining or improving construction value for money. (Flanagan, R. & Norman, G. 1993).

2. Over leveraged debt and scarcity of equity:

One of the major risks in the implementation of Indian BOT road projects has been recognised as a delay in financial closure in PPP projects. (Thomas et al., 2003). One of the major reasons for the delay in financial closure was due to delays in debt syndication because lenders were not comfortable with the proposed projects, and lenders were afraid of high-risk investments. (Thomas, 2003). It has also been suggested in Merna and Khu (2003) that there are instances where projects have not achieved financial closure in the UK, even after being awarded, because of a lack of understanding of debt financing techniques and their associated risks. To decide whether or not to advance project finance loans, lenders evaluate the technical feasibility, economic feasibility, and project cash flow capacity of a project. (Finnerty, 1996).

Since debt financing plays an important role in public-private partnership projects and focus is increasingly being placed on risk management standards from a debt-financing standpoint, it is very important for sponsors to understand the risk profile of PPP projects from a debt-financing perspective. Several macroeconomic and institutional factors limit India's ability to build the infrastructure it requires. A lack of risk capital, limited long-term borrowing capabilities in the domestic banking sector, and high public debt levels at around 80% of GDP, restrictive exposure norms for commercial banks in the infrastructure sector, as well as regulatory and other constraints pose challenges to access to debt from insurance companies and pension funds.

3. Weak regulatory and institutional frameworks:

In India, most infrastructure projects take longer than expected to complete. This is mostly due to an inefficient approval process and an inadequate

regulatory framework. Projects requiring infrastructure clearances at multiple levels of government lack a "common regulatory philosophy to guide the evolution of regulatory institutions in India" (Government of India, Planning Commission, The Secretariat for the Committee on Infrastructure, 2008). Independent Regulatory Institutions have only ever been used in the telecommunications and electricity industries. Moreover, the airports and ports sectors have their own regulators; Aera is the new regulator for the airports and Aera is the new regulator for the ports. Ministry at the centre or state department is still in charge of the rest of the sectors. Despite the existence of independent regulators, there are significant differences in scope, rules, practices, and legitimacy among sectors.

4. Delay in issue of clearances by authorities:

In India, infrastructure projects require active cooperation between several departments. Different departments are responsible for different activities, such as project implementation, shifting power lines, water lines, sewer lines, cutting trees, and obtaining environmental clearances, among other things. Therefore, timely project delivery is highly dependent on the coordinated efforts of all departments; laxity by one department or dereliction by a few officials can stall the entire process. "However, interdependence of efforts means that it is easy for departments to shirk responsibility and pass the blame on to others. So, in addition to intra-organisational

failures, infrastructure projects in India are vulnerable to inter-organisation failures" (Singh, 2010). The World Bank (2006) reports that an infrastructure project can take anywhere from 18 months to four to five years to obtain all the necessary approvals in India. There has been little success with state governments establishing "single window clearances," since most state-level approvals go through multiple clearances at different levels.

5. Land selection and acquisition:

Land acquisition is considered as the biggest impediment for infrastructure development projects in India. This is due to the lack of proper title deeds and additionally due to the reason that farmers are against the use of land for industrial and infrastructural purposes. In majority of the infrastructure projects, project initiation or project implementation is delayed for the lack of land clearances. Seventy percent of the country's highway building program has been delayed by difficulties acquiring land and then obtaining permission to use it for its intended purpose. A major roadblock for infrastructure development is land acquisition. (Nataraj, G. 2014).

Distrust and disputes are likely to result from local communities feeling left out of the development process. Moreover, rehabilitation packages are not meticulously planned nor are they executed efficiently. For example, by the time financial closure of a highway project is achieved, the National Highway Authority of India will bid out the project even with only 10-15% of the land acquired. Almost 70% of PPP road

projects experience a delayed financial closure and construction start.

The Chairman of India's Planning Commission, Montek Singh Ahluwalia (2011), expresses concern about this major problem that requires immediate attention. He draws attention to two major issues: 1) The "hopelessly outdated" Land Acquisitions Act and 2) opaque mechanisms for granting land development permissions, which eventually lead to intuition of corruption and cronyism. The difficulties are exacerbated further by a lack of coordination among central bodies, states, and local authorities.

5. Conclusion and Suggestion

The combined deficit of the federal and state governments in India is approximately 10% of GDP. The Fiscal Responsibility and Budgetary Management Act places restrictions on government borrowing. As a result, state participation in infrastructure financing is inevitably limited, opening the door to novel approaches such as public-private partnerships (PPPs).

While the public-private partnership (PPP) model has been relatively successful in many advanced countries, it is still in its infancy in India, where several projects in various sectors have recently been implemented. However, due to the effects of COVID-19 on economic activity, PPP projects (particularly in the transportation sector) will face significant revenue generation challenges. The overall results show that the top five constraints for speeding up PPP in India are 'Inefficient and inequitable allocation of risk in PPPs,' 'Over leveraged debt and paucity of equity,' 'Weak regulatory and institutional frameworks,' 'Delay in issuing clearances by authorities,' and 'Land selection and acquisition'.

The financial losses incurred by the Project Company as a result of COVID-19 should be fairly assessed. If the government's policy decision is to keep the service and the project running, the contract's financial equilibrium may need to be rebalanced. Furthermore, understanding stakeholder perceptions is critical because successful PPP implementation necessitates commitment from the contracting parties. A review of international best practices in Public-Private Partnerships (PPPs) identifies a number of critical issues that public authorities must address when considering their use in the procurement of public infrastructure projects. The results of this study add to the literature in the field of PPP. Moreover, it also contributes to practice in the PPP. The government, public sector providers, and private sector providers can take the necessary steps to overcome limitations that limit the adoption of PPPs in order to ensure Value for money.

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Let's go to Puri: An empirical study on post-pandemic travel intentions of Odisha residents

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Abstract

Considered as one of the *chaar-dhaams* (holiest four) of India, Puri is famous for being the adobe of Lord Jagannath. It is the most visited destination in the state of Odisha. It serves as a get-away spot and a place with highest religious importance for the residents of Odisha. Due to widespread pandemic, lockdowns and outbound restriction, Puri along with its tourism stakeholders have suffered an unprecedented decline in footfall. Travellers have shown travel avoidance behaviour coupled with lack of travel intentions across the globe in the current situations. This study identifies the factors which influence the post-pandemic Puri travel intentions through an empirical approach. An extended TPB model was proposed with predictors like attitude, subject norms, perceived behavioural control and past Puri travel behaviour regressed against the criterion. A statistical data analysis was performed using SPSS on a sample data of 327 respondents to verify the hypothesis. The study will help the tourism partners and collaborators along with Odisha government to devise and implement strategies to attract existing and new travellers of Odisha and re-flourish the sector as a whole. It will also guide researchers of tourism to assess domestic travel with a different perspective in light of pandemic.

Keywords: Pandemic, Odisha, Travel, Puri, travel intention, post-pandemic travel

Introduction

Situated on the Eastern coast on the shore of Bay of Bengal, Puri is one of the four most sacred and celebrated religious places for Hindus (Chandan *et al.*, 2021). The capital city of Bhubaneswar, along with Puri and Konark form an explicit tourism triangle for the domestic tourists of Odisha. As per the data published by Government of Odisha in 2020, every year millions of traveller and pilgrims visit Puri to get a glimpse of Lord Jagannath, enjoy the vast beach side and other tourist engagements in and around Puri. In any case, the new episode of COVID-19 pandemic shook the actual groundwork of the travel industry and journey in Puri. Furthermore, every time it attempts to resuscitate, another wave caused by a new variant of the deadly virus disturbs the harmony and equilibrium of the travel synergy.

The ongoing pandemic has increased the vulnerability of the hospitality sector (Altinay and Arici, 2021). The risk of contraction of COVID-19 topped up with lockdowns and travel restrictions have triggered travel avoidance behaviour amongst the travellers (Neuburger and Egger, 2021). Recovery in tourism of Puri after pandemic is critical for Odisha's tourism sector. Thus, concentrating on the elements that impact the post-pandemic Puri travel intentions of Odisha residents is vital. The study undertakes extended TPB model to study the predictors which influence the Puri travel intention post-pandemic amongst the residents of the state of Odisha.

Literature Review

Travel restrictions and several lockdowns imposed by the centre and state had unimaginable ramifications on tourism sector (Wen *et al.*, 2020) as the industry is very vulnerable to such widespread pandemic (Gupta *et al.,* 2021). As reported by the state tourism authorities, there was a decrease of more than 80% in the domestic tourism in Puri (*Department of Tourism | Government of Odisha*, 2021). Thus, this study aims to empirically test the reduction in footfall of domestic Puri travellers:

H1.　　There is a significant difference in the tourists' visitation to Puri in pre-pandemic and post-pandemic scenarios.

The study is inspired from the Theory of Planned Behaviour (TPB) which investigates the association relating to attitude, intention and behaviour (Juschten *et al.*, 2019). Through the extent literature, TPB has been successfully used to predict the intentions of subjects in various contexts i.e. by Shen and Shen (2020) for tourism, Seow *et al.* (2020) for medical tourism, Huang *et al.* (2019) for tourists' revisiting intention to a location, Erul *et al.* (2020) to study the intention of residents to support tourism.

In context of the study, attitude refers to the traveller's assessment of a particular way of behaving (Ajzen, 1991). Plentiful research encompassing TPB framework have upheld the constructive outcomes of attitude on travel intention (Liu *et al.*, 2021). This study thus attempts

to test the impact of attitude on the intention to travel to Puri among domestic travellers of Odisha through the following hypothesis:

H2.   Attitude (ATD) has a significant and positive impact on Odisha residents' post-pandemic Puri travel intentions (PPTI).

Subjective norm (SBN) as described by Ajzen (1991) is the prevalent societal coercion which empower or deter a subject to participate in a particular way of behaving. SBN was found to be leading to development of a behavioural intention in the literature (Bamberg *et al.*, 2003). This research paper aims to assess the impact of SBN on post-pandemic travel intention among the residents of Odisha:

H3.   Subjective Norms (SBN) have a significant and positive impact on Odisha residents' post-pandemic Puri travel intentions (PPTI).

The implication of introduction of a non-volitional factor i.e. Perceived Behavioural Control (PBC) in the framework of TPB was acknowledged to be significantly important and an improvement in existing literature (Wang and Wong, 2020). Juschten *et al.* (2019) describe PBC as the self-assessment of the one's capacity to perform explicit ways of behaving with respect to variables like ability and resources. PBC has been found to be a significant contributor to travel intention in recent studies like the study by Liu et al. (2021) on Chinese travellers' outbound travel intention. The current study aims to investigate the impact of PBC on Odisha travellers

on post-pandemic travel intention to Puri:

H4. Perceived Behavioural Control (PBC) have a significant and positive impact on Odisha residents' post-pandemic Puri travel intentions (PPTI).

As indicated by the literature on human behaviour, the future way of behaving and its intention can be best predicted by frequency or recurrence of associated past behaviour (Sonmez and Graefe, 1998). Previous trips to Puri by the tourists tend to uphold a sense of comfort and security during the upcoming travel and hence it boosts their future intention to travel to the same destination (Juschten *et al.*, 2017). A favourable travel experience urges travellers to return to vacationer destinations, though a negative travel experience abridges the inflow of guests (Huh *et al.*, 2002). The related hypothesis in the context of the study is related to the how the frequency of past Puri travel impacts the intention to travel to Puri in post-pandemic scenario:

H5. Past Puri travel behaviour (PPTB) have a significant and positive impact on Odisha residents' post-pandemic Puri travel intentions (PPTI).

Fig. 1 outlines the model proposed by the study.

Figure 1. Proposed model by the study.

Methodology

Operationalization of variables

The variables and items used in the study were adopted from extent travel and
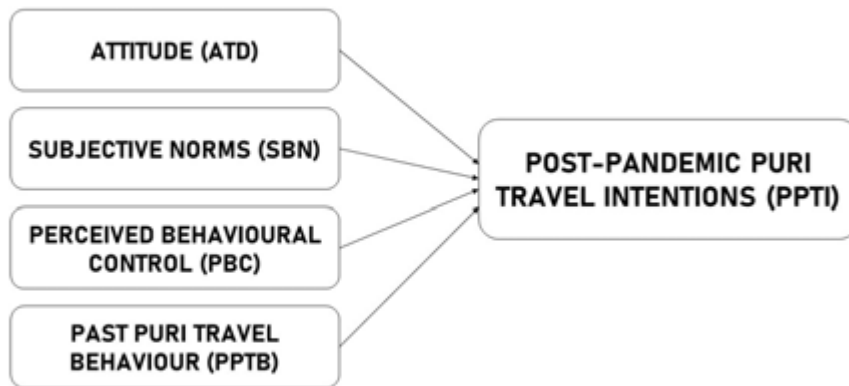
tourism literature with modifications made to fit the context of pandemic and domestic Puri travel. The research paper contains four independent variables and one dependent variable. The items for measuring the four variables namely ATD, SBN, PPTI and PBC were adapted from the scale proposed, developed and used by Ajzen (1991), Lam and Hsu (2006), Liu *et al.* (2021) and Sparks and Pan (2009). There were in total of 18 items to represent these variable in the instrument. The variables were measured a 5 point Likert scale where 1 = strongly disagree and 5 = strongly agree. The study used one item to measure the past Puri travel behaviour (PPTB) which asked the respondents about the frequency of Puri travel before pandemic in a year. The study also included items to capture the socio-demographic details of the respondents like age, gender, educational qualification, annual household income and the district of Odisha they were currently staying in.

Data collection

In order to collect the data from the respondents, an online questionnaire was administered by the researchers for 5 weeks from December, 2021 to January, 2022. Due to lockdown and travel restrictions, online questionnaire was deemed to be fit under the given circumstances. Convenience sampling was used to collect the data. The respondents who were residents of the state of Odisha and had travelled to Puri in or after 2018 were the target population of the study. Voluntary participation was encouraged by the respondents with confidentiality and anonymity affirmation. A total of 327 responses were received from 28 districts of Odisha. SPSS software version 26 was used to statistical analysis of data.

Data analysis

Demographic profile of respondents

The analysis of demographic revealed

that out of 327 respondents 144 (44.04%) were females and rest 183 (55.96%) were males. The age group of 26-35 had highest number of respondents i.e. 107 (32.72%) followed by the age group of 36-50 years old 98 (29.97%), >50 years old 62 (18.96%) and lastly 14-25 age group had 60 respondents (18.35%).

Table 1. Socio-demographic profile of respondents. Maximum percentage of the respondents were post-graduate i.e. 136 (41.59%) followed by graduates 104 (31.80%), diploma holders 29 (8.87%), higher secondary 28 (8.56%), matriculation 12 (3.67%), doctorates 10 (3.06%) and primary school 8 (2.45%) in terms of education al qualification.

Demographic items (for 327 respondents)	Frequency	(%)
Gender		
Female	144	44.04%
Male	183	55.96%
Age		
14-25	60	18.35%
26-35	107	32.72%
36-50	98	29.97%
>50	62	18.96%
Education		
Primary education	8	2.45%
Matriculation	12	3.67%
Higher secondary	28	8.56%
Diploma	29	8.87%
Graduate	104	31.80%
Post – Graduate	136	41.59%
Doctorate	10	3.06%
Annual Family Income		
< 2 Lakhs	16	4.89%
2- 5 Lakhs	63	19.27%
5 Lakhs - 10 Lakhs	153	46.79%
> 10 Lakhs	95	29.05%

Source: Authors' estimation

In terms of annual family income, the highest number of respondents were in the bracket of 5 lakhs to 10 lakhs 153 (46.79%), followed by > 10 lakhs - 95 (29.05%), 2 lakhs to 5 lakhs – 63 (19.27%) and lastly less than 2 lakhs – 16 (4.89%).

Results of t-test

A paired sample t-test was performed on frequency of yearly Puri visits by the respondents pre-pandemic (2018-2020) and post-pandemic (2020 March onwards). The result is presented in table 2.

From the test result it is clear that there is a significant difference in the Puri visitation frequency by the respondents in the pre-pandemic and post-pandemic scenarios. This finding supports the first hypothesis i.e. H1.

Results of the reliability test

Paired Samples Test		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	PPTB - Post_Pandemic_Travel	1.896	1.283	0.071	1.756	2.036	26.727	326	0.000

Table 2. Paired sample t-test result

The test of reliability of the study variables was performed to check the internal consistency and uni-dimensionality. The Cronbach's alpha values of the variables ware found to be between 0.710 and 0.837. The Cronbach's alpha values can be considered satisfactory as they are above the threshold of 0.7 (Nunnally, 1978).

Item	Mean	SD	Cronbach's Alpha (α)
Attitude (ATD)			
Traveling to Puri is risky right now	4.19	1.07	
COVID-19 is a very dangerous and infectious disease and a potential threat to human life	4.62	0.63	
I am concerned about COVID-19 during travelling to Puri right now	4.36	0.91	0.747
I am not concerned about contracting COVID-19 during travel right now	3.93	0.84	
It is dangerous to travel right now because of COVID-19	4.35	0.92	
Subjective Norm (SBN)			

Most people who are important to me think that I should travel to Puri when the pandemic is over	4.13	0.91	
Most people whose opinion I value agree with me about traveling to Puri when the pandemic is over	4.11	0.95	
Most people whose opinion I value support that I travel to Puri when the pandemic is over	4.08	0.93	0.837
Most of the people Whose opinions I value recommend that I travel to Puri when the pandemic is over	4.03	0.90	
Perceived Behavioural Control (PBC)			
I have enough time to travel to Puri when the pandemic is over	4.63	0.67	
I have enough money to travel to Puri when the pandemic is over	4.40	0.72	
I am confident that if I want, I can travel to Puri when the pandemic is over	4.49	0.70	0.765
I feel there is nothing that prevents me from traveling to Puri when the pandemic is over if I want to	4.11	0.94	
Post-pandemic Puri Travel Intention (PPTI)			
I want to travel to Puri after the Pandemic	4.12	0.80	
I intend to travel to Puri after the pandemic	4.16	0.83	
I am planning to travel to Puri after the pandemic	4.14	0.74	
I will make an effort to travel to Puri after the pandemic	4.12	0.75	0.710
I will certainly invest time and money to travel to Puri after the pandemic	4.27	0.68	

5-point Likert scale: 1 = Strongly disagree and 5 = Strongly agree (N = 327)

Results of multiple regression

The analysis of regression coefficient presented in table 6 states that except PPTB (β = 0.025, p = 0.083) all other predictor coefficients are statistically significant at 95% confidence interval namely ATD (β = 0.266, p = 0.000), SBN (β = 0.098, p = 0.011) and PBC (β = 0.317, p = 0.000). The predictors were found to be positively impacting the criterion. With respect to the hypothesis, H2, H3 and H4 are consistent with the research findings. H5 could not be statistically proven in the analysis. Thus, there is no significant impact of PPTB on post-pandemic Puri travel intention (PPTI).

Other descriptive statistics

The analysis of a few general Puri travel

Model Summary				
Model	R	R Square	Adjust-ed R Square	Std. Error of the Esti-mate
1	.749[a]	0.561	0.555	0.34511
a. Predictors: (Constant), PPTB, PBC_Mean, ATD_Mean, SBN_Mean				

Table 4. Model summary.

ANOVA[a]					
	Sum of Squares	df	Mean Square	F	Sig.
Regression	48.99489128	4	12.2487228	102.8447162	.000[b]
Residual	38.34994052	322	0.11909919		
Total	87.3448318	326			
a. Dependent Variable: PPTI_Mean					
b. Predictors: (Constant), PPTB, PBC_Mean, ATD_Mean, SBN_Mean					

Table 5. ANOVA.

Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.127	0.156		7.200	0.000
ATD	0.266	0.044	0.320	6.110	0.000
SBN	0.098	0.039	0.144	2.543	0.011
PBC	0.317	0.054	0.358	5.840	0.000
PPTB	0.025	0.014	0.066	1.740	0.083
a. Dependent Variable: PPTI_Mean					

Table 6. Regression Coefficients.

related questions asked to respondents like 'with whom do you generally travel to Puri on most occasions?' and 'what is the average duration of stay in Puri during your visits?' revealed the following picture. It was observed (figure 2) that most of the respondents travel to Puri with their family (50%) followed by friends (40%) and colleagues (6%). Very small number of 15 (5%) of respondents travel to Puri alone.
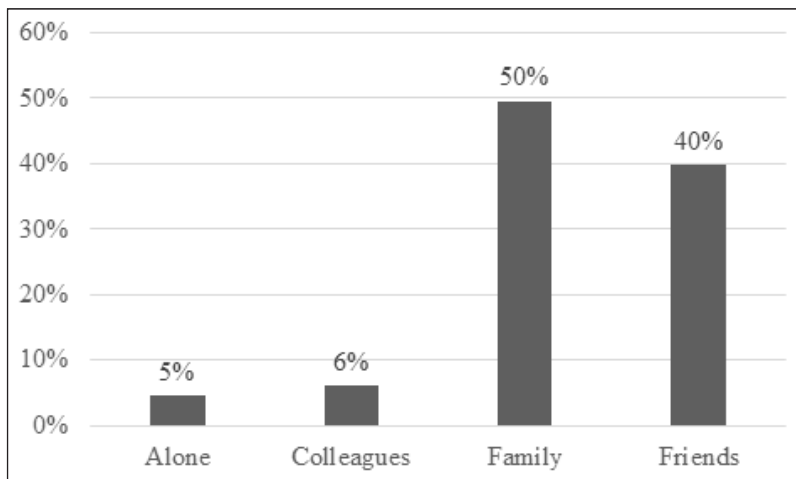
Figure 2. Percentage of relations with whom respondents generally travel to Puri.

The analysis also revealed that most of the respondents (56%) stay in Puri on an average of 1-2 days followed by 30% respondents who stay in Puri for less than a day (or return the same day). 12% of them stay for 3-5 days on an average and only 2% of them stay for more than 5 days averagely in Puri.
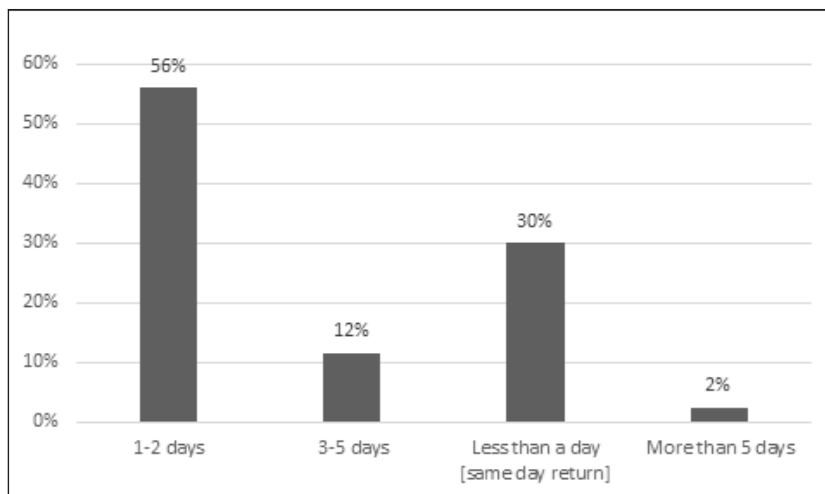

Figure 3. Percentage of average duration of stay at Puri

Discussion and conclusion

This study successfully made an effort to recognize and analyse factors which motivates the domestic travellers of Odisha to take a trip to Puri in post-pandemic paradigm. The significant factors were distinguished from the existing literature concerning progressing COVID-19 pandemic and their impact of future travel intentions was estimated effectively. A model the same has been proposed and empirically tested. COVID-19 pandemic has escorted movement avoidance all through the world, jeopardizing the hospitality and tourism industries because of their dependence on movement. The same has been proven true for local and domestic travel context.

Travel intention of Odisha travellers is generally high when it comes to Puri as the place offers a plethora of engagements under one single destination. The study variables namely subjective norms, attitude and PBC have shown significant and positive influence on the travel intention of Odisha travellers. Exceptionally, PBC has shown the strongest impact in the travel intention. Past travel behaviour in this study didn't prove to be significant which is inconsistent with studies of Lam and Hsu (2006) and Leung (2019). This could be explained by the fact these studies were conducted in a setting where pandemic was in its initial phase. The current situation of COVID-19 pandemic after 2 years and 3 waves might have diluted the relation of past travel behaviour to future travel intentions.

Implications

The study has both theoretical and practical significance in domestic travel sphere. Theoretically, the study fostered an extension into the existing TPB model with unrivalled the predictive capacity for people's domestic travel intention. It also uncovered the components through which Odisha inhabitants' impression of COVID-19 influences their post-pandemic Puri travel intentions.

In a practical context, this research will help the industry stakeholders to ideate, innovative and implement new ways to attract the old and new travellers to the sacred place (Puri) and reinstate the safe travel norms to change their attitude. The partners, professionals and state government department connected with the travel industry area might be convinced to embrace new and inventive techniques for administrations and operations (Altinay and Arici, 2021). Wellbeing affirmation advancements, disinfected facilities, appealing cost offers, online entertainment promoting, powerhouse commercials and unique bundles for old individuals going with family are a portion of the drives which might assist with recapturing the trust of travellers. Odisha Tourism Development Corporation (OTDC) with the help of locals of Puri district can derive constructive input from this study and try to influence the subjective norms among the residents of Odisha by creating a buzz about Puri and the experiences they used to have in pre-COVID context. The travellers ought to feel the control they possessed

before pandemic while planning and executing a trip to Puri to improve their perceived behavioural control.

Limitations and future research

This research paper tried to study the factors which deemed relevant to impact the travel intentions of Odisha residents to Puri. There could be other factors which the authors have missed in context of domestic travel. Further research in this area can identify and empirically test the same. Secondly, due to travel restrictions, researchers had to stick to online questionnaire which captivated the chance to conduct interviews and FGDs and explore more about Puri travel through in-vivo experience. Lastly, the supply side of the tourism sector can be focused in upcoming researches. COVID-19 pandemic had a devastating effect on the hoteliers, travel agents, tour guides and many other stakeholders relating to travel and tourism across the country. Exploring that side of the table might reveal some uncharted facts and theories in context of domestic tourism.

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Increasing Non-Interest Income in Banks from the Use of Credit and Debit Cards in ATMs: A Novel Approach

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Abstract

Most of the online banking channels have a favourable impact on the fee based ROA and ROE of both SBI and ICICI; except for the use of credit and debit cards in ATMs; Guha et al (2020). In this paper, regression model has been used to show the impact of use of credit and debit cards at ATMs on the commission, excise and brokerage of both banks; and a multiple regression model has been developed which will help in increasing fee-based income from the use of credit and debit cards in ATMs. This has important implications for the banking sector as well as the government; because, online banking channels contribute directly towards commission, exchange and brokerage of banks and these are a major source of non-interest income. Fees on the use of credit cards and debit cards in ATMs are levied on the basis of the number of transactions. However, no fees are levied on the basis of the amount of transactions. This lacuna that exists in the banking system demands attention. The aim of this paper is to make appropriate suggestions to increase the fee-based income from the use of credit and debit cards in ATMs.

Keywords: Fee-based income, Indian banks, Credit cards, Debit cards.

1. Introduction:

A study by Guha, Hota and Sahu (2020) shows; most of the online banking channels have a favourable impact on the *fee based* ROA and ROE of both SBI and ICICI, except for the use of credit and debit cards in ATMs. It is important to understand any plausible causes of the same and make appropriate suggestions to improve the performance of the use of credit and debit cards in ATMs.

The main motivation for this study is that, even though the total non-interest income has actually decreased after the financial crisis but, service charges, one of the subcomponents of noninterest income, have increased; (Haubrich & Young, 2019). Also, fees generated from the use of credit and debit cards in ATMs, contribute directly towards 'Commission, exchange and brokerage' in Indian banks, (Sharma, 2009); but, the effect of the aforesaid online banking channels on the 'Commission, exchange and brokerage' is less. This is important because, increasing non-interest income of banks can help the banking industry, the government and the economy by improving banks' performance; as the banking industry around the world is slowly shifting its revenue base from traditional activities to non-traditional activities that generate fee income, service charges and other types of non-interest income; particularly after the financial crisis of 2006-2007 and bbanks have improved their risk-return profiles as an outcome of diversification; Edirisuriya, Gunasekarage and Dempsey (2015), Singh (2016). Over the years e-banking

has become a major contributor of non-interest income. But, the effect of two online banking channels; 'Credit card usage in ATMs' and 'Debit card usage in ATMs' on banking income is less. This fact along with the fact that the cost of cash is rising; motivates us to find out whether a model can be developed that can help in increasing the contribution of the aforesaid e-banking channels towards banking income.

In this study, regression technique has been used to show the effect of the use of credit cards and debit cards at ATMs on the commission, excise and brokerage (which is a part of total banking income) of both banks. Next, it has been discussed why banks need to increase fees for increased cash usage along with developing a multiple regression model which will help in increasing fee-based income from the use of credit and debit cards in ATMs. Finally, this paper also tries to determine the right amount of fees that should be levied, if this new approach is followed, with the help of probability approach.

2. Review of Literature

Haubrich and Young (2019), in their paper, show that service charges have increased after the global financial crisis. They also use regression to find out why banks increased their dependence on non-interest income. In order to increase non-interest income from the use of credit and debit cards in Indian banks, a regression model has been developed. The review of literature that leads to the formation of our regression equation has been categorized in terms of the dependent and the independent variables.

Service charges: An important part of non-interest income

Non-interest income is the income for a bank which arises from non-traditional activities; (Singh, 2016). He says the Indian banking industry is slowly increasing its earnings through diversification to non-traditional activities that generate fee-based income, like service charges and other non-interest income. He adds, after the financial crisis of 2008 non-interest income has gained attention all over the world; and the shift towards non-traditional activities is assumed to reduce the volatility of banks' revenues and thus reduce risks; because, non-interest income is less dependent on overall business conditions as compared to interest income. Pennathur, Subrahmanyam and Vishwasrao (2012) in their work note, there is a significant reduction of risk, measured by profitability variables, with an increase in fee-based income for public sector banks. Default risk declines as well. Apart from India, Edirisuriya et al (2015), say that since the deregulation of the Australian financial market, banks in Australia have also significantly diversified to a broader range of financial products and services. This has led to improved risk-return profiles of Australian banks. Another study by Haubrich and Young (2019) shows, that a large portion of banks' revenue comes from non-interest income, which includes overdraft fees and ATM charges. In the study, the authors find that total non-interest income has actually decreased; even though, the low market interest rate has had an impact on the banks'

interest income. *However, service charges, one of the subcomponents of noninterest income, have increased.* A significant outcome of this study is that, the increase in service charges gets hidden in the data on total non-interest income; because; other types of non-interest incomes fell during the same period.

The fact that total service charges in banks have increased after the global financial crisis is very important in the formation of the regression equation wherein "Commission, excise and brokerage" is the dependent variable.

Contribution of e-banking to non-interest income

Saluja and Wadhe (2015), from 2006 – 2014, conduct a study on 31 Indian banks categorized under four major bank groups of scheduled commercial banks, in order to investigate how E-banking impacts the profitability of Indian scheduled commercial banks. The results show that an increase in number of ATMs affects the profitability positively. Another study shows that, foreign banks report highest fee income then private domestic banks followed by public sector banks; (Pennathur et al, 2012). This study shows that higher the levels of governmental ownership lesser the likelihood to pursue non-interest income sources. The result has implications for banks in emerging banking markets pursuing non-interest revenue sources as changes are bound to occur in the risk profile of such banks. Singh (2016), also finds that, in India, foreign banks report maximum fee income followed by private sector banks while public sector banks report

significantly less. The author finds that return on equity, loan quality, profit per employee, and personalized customer services offered to bank customers have a strong and positive influence on non-interest income. Another important finding of this study is that, as banks increase focus on traditional interest income sources, there is a tendency to diversify less into non-traditional or non-interest income.

Around the world, Hossein (2013), studies the banks that have taken to online banking in selected Asian countries. The time period of the study is between 1990 and 2010. The study allows for the heterogeneous country effect and the empirical results indicate a co-integration relationship in the short-run. To determine the long-run relationship, a full-modified OLS has been used. The study makes use of bank specific as well as macro-economic control variables to understand the impact of internet banking on the banks' return on assets (ROA) and return on equity (ROE). According to the study, e-banking starts contributing to banks' ROE three years lagged; including a negative impact for one year lagged. Furst, Lang, and Nolle (2002), compiled responses to a questionnaire that was developed by the examiners from the Office of the Comptroller of the Currency (OCC). The time period was between mid-August and mid-September 1999. The study was conducted on 2,535 national banks in USA. The results show that internet banks rely more on non-traditional sources of income and less on core deposits for funding as against non-internet banks; and accounting efficiency ratios as well as returns on equity are better for internet banks.

The online banking channels; use of credit cards in ATMs and use of debit cards in ATMs contribute directly towards "Commission, excise and brokerage" in Indian banks; (Sharma, 2009). This is important for the formation of the regression equation.

More charges for more cash

Chakravorti (2014) says, only 8.2% households are unbanked in the U.S. However, for individuals in the U.S., cash usage has highest impact on the unbanked due to the impact of a regressive tax. Also, it is a lot of work since paper money has to be guarded, managed, stored, and accounted for. U.S. retail businesses lose about $40 billion annually due to theft of cash and the U.S. treasury loses about $100 billion annually because of cash in circulation. In India, 20% adults are unbanked; according to the Global Findex Report of 2017. But, due to India's sheer population size 20% equals to more than 190 million adults. This leads to under reporting of earnings and transactions; due to which the society bears a huge cost of cash. A report prepared by IIT-Bombay says; more than Rs 5,000 crore is spent annually on printing and managing cash. The report claimed that the amount spent towards maintaining Unified Payment Interface (UPI) could be much lower and the expenditure on cash could be curtailed; (www.economictimes.com). A new study

conducted by Visa says, in India, the cost of cash transactions is equivalent to 1.7 per cent of the gross domestic product (GDP). Bringing it down from 1.7% to 1.3% alone would lead to a savings of Rs 70,000 crore over a period of 5 years; (www.businessstandard.com). Interestingly, the Reserve Bank of India has reported an unprecedented rise in currency held by public. In the immediate aftermath of demonetisation, the cash component came down from about 12% of GDP to 7.5% of GDP only to rise steadily in subsequent years; it has grown a whopping 57% from Rs. 17.5 trillion on Nov 4, 2016 to Rs 28 trillion on Oct 8, 2021; (www.thewire.in). Fees on the use of credit cards and debit cards in ATMs are levied on the basis of the number of transactions. After surpassing the stipulated number of free transactions per month, the customers are charged a certain 'fee' by the bank. However, no fees are levied on the basis of the amount of transactions. In a world where the cost of cash is rising and in developing countries like India, where the use of cash is increasing; is an important fact to be considered while developing a multiple regression model to increase fee-based income.

1. Importance of the study

Some very important observations have emerged after review of literature; first, there is an increase in the diversification activities of banks after the global financial crisis of 2006-07. Second, e-banking has become a major contributor of non-interest income, and is becoming popular by the day. Third, cash is still the king in developing economies like India, this fact along with the fact that the cost of cash is rising; motivates us to find out whether a model can be developed that can help in increasing the contribution of 'Credit card usage in ATMs' and 'Debit card usage in ATMs' to 'Total banking income' as the usage of these e-banking channels increase.

2. Objectives of the study

-To develop a new regression equation that will help in increasing fee-based income, in Indian banks, from the use of credit and debit cards in ATMs.

-To ascertain the right amount of fees that should be levied from ATM users in order to increase fee-based income from ATMs.

5. Methodology

$$P(A\mbox{ or }B)=P(A\cup B)=P(A)+P(B)-P(A\cap B)=P(A)+P(B)-0=P(A)+P(B)$$

For this study, various types of non-interest income of both SBI and ICICI have been obtained; including commission, excise and brokerage. Also, data on use of credit as well as debit cards in ATMs has been obtained. The amounts are in million Rupees. All data has been collected from www.rbi.org and www.moneycontrol.com. The leading public sector bank SBI and private bank ICICI have been selected for the study. ICICI was the leading private sector bank in India till March 2017 (www. qz.com). These banks have been selected because it is assumed that all other banks follow the leaders as far as trends in non-interest income are considered. The study has been conducted over a period of 6 years from 2011-2017. Data on online banking

channels like, use of credit and debit cards in ATMs is not available before 2011.

Regression has been carried out using SPSS and LASSO technique (Tibshirani, 1996) has been used to study the impact of use of credit cards and debit cards in ATMs on the commission, excise and brokerage of SBI and ICICI. With regression technique, it can be found out what effect the use of credit cards and debit cards at ATMs has on the commission, excise and brokerage of both banks.

The regression models used in this paper are as follows;

SBI;

$$Y_s = f(C_s)$$

$$Y_s = f(D_s)$$

For ICICI;

$$Y_i = f(C_i)$$

$$Y_i = f(D_i)$$

Where, Y_s stands for 'Commission, excise and brokerage' for SBI, C_s stands for use of credit cards at ATMs for SBI, D_s stands for use of debit cards at ATMs for SBI, Y_i stands for 'Commission, excise and brokerage' for ICICI, C_i stands for use of credit cards at ATMs for ICICI and D_i stands for use of debit cards at ATMs for ICICI.

Furthermore, a multiple regression model has been developed by adding a new variable which will help in increasing the contribution from the use of credit and debit cards towards both banks' non-interest income.

The multiple regression equations;

for SBI are;

$$Y_s = f(N_x) + f(C_s)$$

$$Y_s = f(N_x) + f(D_s)$$

And for ICICI;

$$Y_i = f(N_x) + f(C_i)$$

$$Y_i = f(N_x) + f(D_i)$$

Where, the new variable added, N_x stands for the number of times withdrawals touch Rs.10000 mark.

More analysis has been carried out in order to ascertain the right amount of fees that should be levied from customers which will help in increasing fee-based income in public and private sector banks in India as the use of credit and debit cards increases in ATMs; and keeping in mind the rising cost of cash.

6. Data Analysis and Interpretation

The total amount of some sources of non-interest income is negative or very less; refer Appendices 3 & 4, so they are not visible in the pie chart. However, it can be clearly seen that Commission, Excise and Brokerage is the major source of non-interest income. Please refer to Figure 1 & 2.

Figure 1: Pie Chart showing various sources of non-interest income of SBI

Figure 2: Pie Chart showing various sources of non-interest income of ICICI
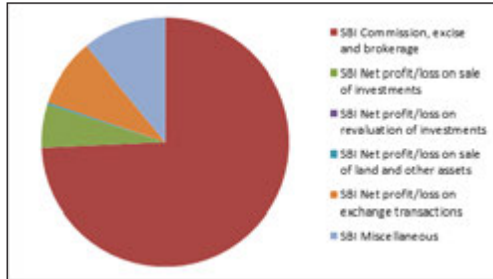
Source: www.moneycontrol.com

Regression Analysis

Regression has been performed, using LASSO technique in SPSS (Tibshirani, 1996), to show the effect of use of credit as well as debit cards in ATMs on the Commission, excise and brokerage of SBI and ICICI; please refer to appendices 1& 2. It can be seen that even though these online banking channels contribute directly towards the Commission, excise and brokerage of both banks (Sharma, 2009); yet, in case of SBI there is enough scope of improving the same while in case of ICICI it is really poor and requires major improvement. Please refer to the regression results in Table 1.

Table 1: The regression results (R-Square); regressions run on commission, excise and brokerage of SBI and ICICI.

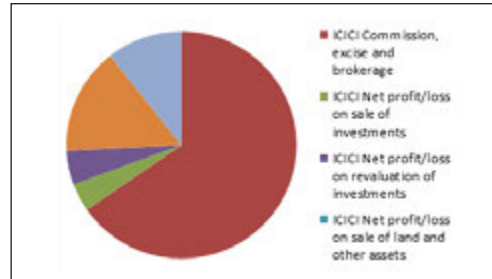| Banks Use of Credit Cards in ATMs Use of Debit Cards in ATMs		
SBI 0.7 0.6		
ICICI 0.2 0.1		

Source: www.rbi.org and www.moneycontrol.com

A. Need for a new regression model

Fees on the use of credit cards and debit cards in ATMs are levied on the basis of the number of transactions. After surpassing the stipulated number of free transactions per month, the customers are charged a certain 'fee' by the bank. However, no fees are levied on the basis of the amount of transactions i.e., no difference exists between withdrawing Rs. 5000 and Rs. 15000. Each and every type of say, debit card, allows a certain amount of withdrawal at ATMs. But, even within a category, there should be fees levied from those who withdraw more cash.

This is important because, the Reserve Bank of India reported, 'an unforeseen rise in currency held by public. It has shown a dramatic 57% growth; from Rs. 17.5 trillion on Nov 4, 2016 to Rs 28 trillion on Oct 8, 2021; five years after the government announced the demonetisation of Rs 500 and Rs 1,000 notes on November 8, 2016'. This indicates that cash is still the king in the financial system despite the big push

in digital transactions and less cash economy. Currency to GDP ratio, which dipped to 7.5 per cent in the immediate aftermath of demonetisation, has now risen up to 14.5 per cent as of November 2021. (www.thewire.in).

But cash is a costly affair; and in a country like India where more than 190 million adults are unbanked, under reporting of earnings and transactions compels the society to bear a huge cost of cash. According to a report prepared by IIT-Bombay; about Rs 5,000 crore is spent annually on printing cash alone and even more on managing it (www.economictimes. com). Also, a new study by Visa says, the cost of cash transactions in India is equivalent to 1.7 per cent of the gross domestic product (GDP). Reducing it to 1.3% would lead to savings of Rs 70,000 crore over 5 years (www. businessstandard.com).

The daily cash withdrawal limits of SBI and ICICI banks are discussed below. Please refer to Tables 2 & 3 respectively.

Keeping the above facts in mind, it can be rightly said that there is a need to impose fees on those who withdraw more cash. For this, let us suppose (please note that the charges are hypothetical) those who withdraw in between Re.1 to Rs. 9999 are charged no fees; while those who withdraw between Rs. 10000 to Rs. 19999 are charged Re.1. Withdrawals between Rs.20000 to Rs. 29999 are charged Re.2 and so on. It can be represented as N_x. Where, x stands for Rs.10000 and N is the number of times withdrawals touch Rs.10000 mark; i.e., 0 for withdrawals below Rs.10000, 1 when it is Rs.10000 but below Rs.20000. 2 when it is Rs.20000 but below Rs.30000 and so on; and N_x together represent the charges that should be levied from a customer every time the withdrawals touch the 10000 mark. So, irrespective of what a customer is withdrawing every day, if her total monthly cash withdrawal from ATMs stands at Rs. 45000; N_x will be equal to 4.

Adding this new variable will lead to new multiple regression equations;

For SBI;

$$Y_s = f(N_x) + f(C_s)$$

$$Y_s = f(N_x) + f(D_s)$$

For ICICI;

$$Y_i = f(N_x) + f(C_i)$$

$$Y_i = f(N_x) + f(D_i)$$

Where, Y_s stands for 'Commission, excise and brokerage' for SBI, C_s stands for use of credit cards at ATMs for SBI, D_s stands for use of debit cards at ATMs for SBI, Y_i stands for 'Commission, excise and brokerage' for ICICI, C_i stands for use of credit cards at ATMs for ICICI, D_i stands for use of debit cards at ATMs for ICICI and N_x stands for the number of times withdrawals touch Rs.10000 mark.

Addition of this new independent variable will help in increasing R-square in all four cases; i.e., increasing fee-based income in public and private sector banks in India as the use of credit and debit cards increases in ATMs.

Table 2: Daily ATM cash withdrawal limits applicable to SBI debit cards.

ATM/ Debit cards ATM withdrawal limit
SBI Classic and Maestro Debit Cards Rs. 20000
SBI Global International Debit Card Rs. 40000
SBI Gold International Debit Card Rs. 50000
SBI Platinum International Debit Card Rs. 1lakh
SBI In Touch Tap and Go Debit Card Rs. 40000
SBI Mumbai Metro Combo Card Rs. 40000
SBI My Card International Debit Card Rs. 40000

Source: www.indiatvnews.com

Table 3: Daily ATM cash withdrawal limits applicable to ICICI debit cards.

ATM/ Debit cards ATM withdrawal limit	
Sapphiro debit card	Rs. 2.5lakh
Rubyx debit card	Rs.1.5lakh
Coral debit card	Rs. 1lakh
Coral business debit card	Rs. 1.5lakh
Visa signature debit card	Rs. 1.5lakh
MasterCard world debit card	Rs. 1lakh
Business banking platinum debit card	Rs. 2lakh
Priviledge banking titanium debit card	Rs. 1lakh
Priviledge banking gold debit card	Rs. 75000
Business debit card	Rs. 1lakh
Woman's debit card	Rs. 50000
HPCL debit card	Rs.50000
Platinum debit card	Rs. 1lakh
Platinum chip card	Rs. 1lakh
Smart shopper silver debit card	Rs. 50000

Source: toughnickel.com

B. **Probability of consumer preference**

Probability is the branch of mathematics that depicts how likely an event is to occur, or how likely it is that a proposition is true. The probability of an event is a number between 0 and 1, wherein, roughly speaking, 0 indicates impossibility of the event and 1 indicates certainty. The higher the probability of an event, the more likely it is that the event will occur; (Brown & Wong, 2015).

If either event *A* or event *B* can occur but never both simultaneously, then they are called mutually exclusive events. If two events are mutually exclusive, then the probability of *both* occurring is denoted as:

P (A ∩ B){\displaystyle P(A\cap B)} and P (A and B) = P (A ∩ B){\displaystyle P(A\cap B)} = 0{\displaystyle P(A{\mbox{ and }}B)=P(A\cap B)=0}

If two events are mutually exclusive, then the probability of *either* occurring is denoted as;

P (A ∪ B) {\displaystyle P(A\cup B)} and P (A or B) = P (A ∪ B) {\displaystyle P(A\cup B)}= P (A) + P (B) – P (A ∩ B) {\displaystyle P(A\cap B)} = P (A) + P (B) – 0 = P (A) +P (B)

Now, due to charging the amount N_x from customers two different situations can arise;

For SBI,

$Y_s = f(N_x) + f(C_s)$ and $Y_s = f(N_x) + f(D_s)$

Or, $Y_s = f(C_s)$ and $Y_s = f(D_s)$; where $N_x = 0$, i.e., cash transactions are below Rs.

10000. This means that the customers will not be willing to pay the extra charges at all.

Similarly for ICICI;

$Y_i = f(N_x) + f(C_i)$ and $Y_i = f(N_x) + f(D_i)$

Or, $Y_i = f(C_i)$ and $Y_i = f(D_i)$; where $N_x = 0$.

In case the second event arises the cost of printing currency is saved. However, if the first event arises the amount N_x should be such that it covers the cost of printing currency and ultimately the economy should suffer no loss due to excessive cash withdrawal.

7. **Conclusion**

The aim of this paper was to correct a lacuna that exists in the Indian banking scenario. The online banking channels; use of credit cards in ATMs and use of debit cards in ATMs, contribute towards Commission, Excise and Brokerage of banks. But, it can be seen that in case of SBI there is enough scope of improving the same while in case of ICICI it is really poor and requires major improvement. This is also important because 'Commission, excise and brokerage' is the major source of non-interest income for both public and private sector banks in India.

Analysis shows that, fees on the use of credit cards and debit cards in ATMs are levied on the basis of the number of transactions. However, no fees are levied on the basis of the amount of transactions. Each and every type of card allows a certain amount of withdrawal at ATMs; but, even within a category, there should be more fees levied from

those who withdraw more cash. So, a new multiple regression equation has been developed which takes this fact into consideration. This will help in increasing the fee-based income in banks. This study has important implications for the banking sector as well as the government, because; online banking channels contribute directly towards commission, exchange and brokerage of banks and these are a major source of non-interest income and even though most of the online banking channels have a favourable impact on the *fee based* ROA and ROE of both SBI and ICICI; income from the use of credit and debit cards in ATMs is less and can be increased (Guha et al, 2020). An important reason for this might be because no fees are levied on the basis of the amount of transactions in ATMs and the rise in the currency in the system in the aftermath of demonetisation indicates that despite the big push in digital transactions and less cash economy, cash is still the king in the financial system. Also, printing currency is a costly affair. This study also takes help of probability approach to determine the right amount of fees that should be levied for increased cash transactions that will benefit the economy through banks. Apart from managerial implications, this study has some theoretical implications as well. Banks profit from diversification activities and non-interest income but mostly foreign banks focus on increasing non-interest income as compared to public sector banks; (Edirisuriya et al., 2015), (Singh, 2016). This paper focuses on novel ways to increase non-interest income. However, this paper focuses only on developing a regression model in order to increase fee-based income from the use of credit cards and debit cards at ATMs. But, if this new approach is followed, will it create immense pressure on the account holders in terms of charges levied? Or can both charges co-exist? Or are fees levied on the basis of amount of transactions better for the economy?

All these are a matter of further research.

Appendices

Appendix 4: First column shows the years, second shows commission, exchange and brokerage, third shows net profit/loss on sale of investments, fourth column shows net profit/loss on revaluation of investments, fifth column shows net profit/loss on sale of land and other assets, sixth shows net profit/loss on exchange transactions and the last shows miscellaneous non-interest income in ICICI. All amounts are in million Rupees.

YEARS	Commission, excise and brokerage	Net profit/ loss on sale of investments	Net profit/ loss on revaluation of investments	Net profit/ loss on sale of land and other assets	Net profit/loss on exchange transactions	Miscellaneous
2012	54,351.0	3,314.0	-4,053.0	-17.0	12,590.0	8,843.0
2013	54,617.0	5,651.0	-1,287.0	353.0	13,331.0	10,793.0
2014	63,073.0	4,174.0	3,480.0	1,364.0	18,265.0	13,923.0
2015	69,799.0	15,503.0	-18.0	69.0	20,421.0	15,988.0
2016	74,617.0	42,583.0	-4,629.0	281.0	22,716.0	17,664.0
2017	80,349.0	88,139.0	-1,907.0	21.0	13,552.0	14,890.0

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Appendix 1: First column shows the years, second shows the amount of commission, excise and brokerage in SBI, third shows the amount of transactions of credit cards at ATMs and the last column shows the amount of transactions of debit cards at ATMs; in SBI. All amounts are in million Rupees.

YEARS	Commission, excise and brokerage	Creditcard transactions at ATMs	Debitcard transactions at ATMs
2011-12	120,909.0	1259	4901271
2012-13	114,837.0	1596	5809581
2013-14	126,113.0	2335	6826093
2014-15	131,728.0	3982	7202720
2015-16	144,160.0	3806	7475747
2016-17	162,766.0	4190	7534605

Appendix 2: First column shows the years, second shows the amount of commission, excise and brokerage in ICICI, third shows the amount of transactions of credit cards at ATMs and the last column shows the amount of transactions of debit cards at ATMs; in ICICI. All amounts are in million Rupees.

YEARS	Commission, excise and brokerage	Credit card transactions at ATMs	Debit card transactions at ATMs
2011-12	54,351.0	556	1288351
2012-13	54,617.0	492	1424964
2013-14	63,073.0	475	1665409
2014-15	69,799.0	3780	6723846
2015-16	74,617.0	1300	1829940
2016-17	80,349.0	1113	1679027

Appendix 3: First column shows the years, second shows commission, exchange and brokerage, third shows net profit/loss on sale of investments, fourth column shows net profit/loss on revaluation of investments, fifth column shows net profit/loss on sale of land and other assets, sixth shows net profit/loss on exchange transactions and the last shows miscellaneous non-interest income in SBI. All amounts are in million Rupees.

YEARS	Commission, excise and brokerage	Net profit/loss on sale of investments	Net profit/loss on revaluation of investments	Net profit/loss on sale of land and other assets	Net profit/loss on exchange transactions	Miscellaneous
2012	120,909.0	-9,197.0	0	-441.0	14,322.0	17,922.0
2013	114,837.0	11,019.0	-38	-327.0	16,916.0	17,941.0
2014	126,113.0	22,794.0	-2,027.0	-386.0	18,953.0	20,083.0
2015	131,728.0	36,180.0	0	-427.0	19,360.0	38,918.0
2016	144,160.0	51,688.0	-1,517.0	-167.0	17,993.0	66,296.0
2017	162,766.0	107,496.0	0	-371.0	23,884.0	60,833.0

Assessment of operational functions affecting on the micro and small enterprises' sustainability

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Abstract

Micro and Small business being epitomised for the economic development, have had its detriments which domineer the success rate. To strengthen the enterprise, the supports from the governments in the way of many schemes have been exponentially disseminated to the relative communities. Yet, the sustainability of micro and small business is surmountable. It is evident through literature that the operational functions are not effective enough to be sustainable which would impact the success rate of the micro and small business. Assessing the impact of the operational functions i.e. marketing competence, technology competence, information access, government support and financial competence are dependent on the success of micro and small enterprise. The study has been carried out with a mix method of descriptive design, mixed approach of qualitative and quantitative, convenience sampling and the cross sectional surveys. The data collected with a self-administered questionnaire from the unit of proprietors of micro and small enterprises in Srikakulam District. The data was analysed with descriptive and inferential statistics and through ANOVA and Multiple Regression Analysis, the interpretations of impact and strength of explaining dependable variable were explored. Conclusions have been established out of certain management implications.

Keywords: MSEs, Sustainability, Operational Functions, Srikakulam, Multiple Regression Analysis

1. Introduction

Indian Micro Small and Medium Enterprises (MSMEs) being a main contributor to the country for its socio-economic development, Gross Domestic Product (GDP) and exports is a driving force for the development of free enterprise in rural India. The exemplary and epitomised statistics from the MSME Ministry, as of November 26, 2021, the number of MSMEs registered are 5,767,734 with 6.3cr turnover, as per the Udyam portal data with the specification of segmenting 5,441,220 (94.34%), 293,555 (5.09%) and 32,959 (0.57%) for micro-enterprises, small enterprises and midsized enterprises respectively. Additionally, the Ministry of MSME offers a good number of schemes pertaining to the assistance of credit and finance and the development of skill, infrastructure, marketing, technology, quality and services.

As projected by the Government, to double the Indian economy to US$ 5 trillion in five years, the promotion of MSME and increase its contribution to that level and thereby leads to the generation of employability to youth. Back-end services, technology based activities and R&D activities will have to be improved to establish the product unique at the standpoint of quality standards. Even government supports such products through certain subsidiaries *(Deloitte Report, 2021)*.

As far as the developing countries are concerned, the contribution of small business to its GDP is around 39% of national income with an establishment of MSEs at 80%. When it comes to developing countries like India, it is believed that the role of MSE is imperative enough to add value to economic development. Low investment capabilities and cheap and locally available raw material can create good and quantified job opportunities as well as serve better (Waleligne and Wendimu, 2002).

Innovations are highly flexible and the relationship formation and maintenance is easier in SMEs since the overheads are lower and its size allows and adopts the novice processes and services (Turner, 2010).

About 10 lack people are employed through 24,252 micro units among 97,428 MSMEs exist in the state which is the second largest employment generator next to agriculture. The important industries that make waves in the state are Agro and food-based, biotechnology, bulk drugs and pharmaceuticals, IT and ITeS, textile and leather, tourism, automotive and auto components, gems, and jewellery. Some of the cities like Chittoor, Vijayawada, Kurnool, and Guntur are the successful business hub centres in Andhra Pradesh.

Further, the encouragement and promotional activities of MSE in the state have been meagre. Though the Government has prepared the new industrial policy in 2021 and gave importance to MSMEs and women entrepreneurship, little is attained so far. MSEs are facing many challenges

in their performance, promotion and development so as hindered. The major problem is that the Micro and Small Enterprises (MSE) are incapable to address the problems they face on their own, even in and efficiently functioning market economies. Some of the trouble specifically are market accessibility, financing, business information, premises insufficiency, skills and managerial expertise, technology access, infrastructure, and discriminatory regulation practices.

Results indicated that the most common causes of business failure were lack of knowledge regarding legal matters, lack of funding, and a general lack of business acumen. This study recommend government specific measures that would improves the effectiveness of its support mechanisms to small and micro enterprises (Mbonyane, 2006)

The purpose of this research is to better understand why small businesses sustainability and how entrepreneurs can avoid failure. Number of researches have been done on determinants of business growth of MSE. However limited research has been done on the causes of small business failure. Thus this research will fill the gap in the literature.

2. Objectives

1. To identify the present positioning of MSEs in North Coastal districts of Andhra Pradesh i.e. Srikakulam, Vizianagaram and Visakhapatnam.

2. To assess the impact of operational functions, i.e. Entrepreneurial Quality, Government Support, Information Competence, Financial Competence, Technology and Marketing Competence on the sustainability of micro and small enterprises.

Hypotheses:

1. Marketing and Technology competence has a significant and positive impact on success of MSEs.

2. Financial competence has a significant and positive impact on success of MSEs.

3. Information access has a significant and positive impact on success of MSEs.

4. Government support has a significant and positive impact on success of MSEs.

5. Entrepreneurial orientation has a significant and positive impact on success of MSEs.

3. Research Methodology

The studied was carried out with descriptive design and mixed approach of qualitative and quantitative. The design of Survey research has been done by distributing questionnaire to representative sample of the study population selected from North coastal districts i.e. Srikakulam, Vizianagaram and Visakhapatnam. The population study is all MSEs of bothsuccessful and failure businesses in various industries for the last ten years. The sample was

taken from Micro and Small Enterprises list published by the ministry of MSME. To ensure the representativeness of the data, the sample technique used was simple random sampling. The sample size was determined 325 and usable sample were 112 due to extreme non-sampling errors in the age of Covid pandemic.Data was gathered through a standard questionnaire. Data gathered has been analysed with ANOVA and multiple regression through SPSS21.

4. Literature Review:

Pandya (2013) emphasised the sustainability studies for small business since the competitive advantage carry a lot with respect to the measures to be adopted to increase the business.

Gorzeń-Mitka (2013) identified previous experience, documentation review and brainstorming asrisk identification techniques due to poor knowledge about its expediency or possibilities of use.

As a part of marketing efforts, retaining consumers and the offers along with the products can captivate the sales which in turn lead to the success of the firm and innovationsthrough niche is a key strategy for small firms to grow faster (Storey, 1994).

Management of financial recourses with respect to procurement, allocation, distribution and utilisation plays a vital role in MSME success graph which is the most important and fundamental requirement for any entrepreneur. Besides,acquiring complete knowledge about the business is a significant concern to gain sustainability of any business.

Valsamma Antony (2002) revealed the importance of working capital for the smooth running of small business as well as the marketing avenue for the promotion of the product for the improvement of the business to grow and increase its strength in competition with global and domestic market also. She also expressed that the information related to the market, competitor and consumer to be accessed through proper efficient network along with the infrastructural facilities.

Certain SMEs face some challenges such as the scarcity of financial, human and material resources, market intricacies and dynamics (Pansiri and Temtime, 2008).

Subrahmanyabala, M.H. (2004) underlined that small industry was agonised with the growth of units, employment, outcome and exporting. The policy changes lead to new openings and markets for the small-scale sector at the standpoint of technology and financial infrastructure development which routes to internationally competitive and add something to national income.

Singh et.al. (2012) stated that Small business units have progressed toward to increase the size of the business, capacity of the production as well as the levels of employment. Upgraded technology, improved financial status would boost the growth of Small business.

As regards to corporate sustainability, Epstein (2008) stated nine sustainability principles of Ethics, Governance, Transparency, Business Relationships, Financial Return, Economic Development, Value of Production and Services, Employment Practices and Protection of Environment

5. Analysis of Findings

Table 1.1 : Model Summary of operational variables

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.683[a]	.388	.353	.83356

a. Predictors: (Constant), Other variables, Entrepreneurial Quality, Government Support, Information Competence, Financial Competence, Technology and Marketing Competence

b. Dependent Variable: Business Success

As depicted in table 1, the model summary of operational variables explain 68.3% of the variance in business success of micro and small enterprises. 31.7% is accounted for business growth if other variables are controlled successfully.

Table 1.2 : ANOVA

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	46.627	5	7.671	10.184	.000[b]
	Residual	73.652	107	.695		
	Total	120.278	112			

a. Dependent Variable: Business Success

b. Predictors: (Constant),Entrepreneurial Quality, Government Support, Information Competence, Financial Competence, Technology and Marketing Competence

Table-1.2 exhibits the ANOVA, which defines the model is statistically significant at 1% confidence interval (0.01 level). The impact of the independent Variables i.e. Entrepreneurial Quality, Government Support, Information Competence, Financial Competence, Technology and Marketing Competence on the dependant variable of Business success is significant enough with the fisher value of 10.184

which is significant at 0.01 level. The residual value is 73.652 with degree of freedom 107 and mean square value is 0.695, which confirms this model can fit in any geographical area of study, related to micro and small business enterprises by showing statistically significant at 0.01 level.

Table 1.3 : Regression result of the model

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.265	.078		41.632	.000
	Technology and Marketing Competence	.321	.079	.310	4.075	.000
	Financial Competence	.184	.079	.177	2.332	.022
	Information Competence	.131	.079	.126	1.663	.099
	Government Support	.265	.079	.256	3.366	.001
	Entrepreneurial Quality	.411	.079	.396	5.216	.000
a. Dependent Variable: Business Success						

Table-1.3 shows Regression result of the model in which it interprets, that the technology and marketing competence 31%, with student test value 4.075 which is significant at 0.01 level. test value 2.332, Information competence has 12.6% with student test value 1.663 Government support has 25.6% with student test value 3.366, entrepreneurial quality has 39.6% with student The financial competence has 17.7% with student test value 5.216 which is significant at 0.01 level. The other variables has 14.7% with student test value 1.939 standardized beta coefficient for the dependent variable business success. Thus, the most important variables are entrepreneurial quality, technology and marketing competence, government support, financial competence and information competence respectively.

Testing Hypotheses:

1. Marketing and Technology competence has significant and positive impact on success of MSEs is supported at 5% significant level

2. Financial competence has significant and positive impact on success of MSEs is supported at 5% significant level

3. Information access has significant and positive impact on success of MSEs is supported at 10 % significant level

4. Government support has significant and positive impact on success of MSEs is supported at 5% significant level

5. Entrepreneurial orientation is significantly related to success of MSEs is supported at 5% significant level

Recommendations

1. The concentration by the related communities to transform and develop the micro enterprises into small enterprises with strategic view is highly recommended with respect to the expansion of the business should lead to consistency and sustainability of the same business.

2. Accommodating female entrepreneurs in the industry can be more accelerated by exclusive training programs in the areas of resource management, financial management and marketing management. Distribution of the knowledge through training programs can be well instituted by proper network as it is found that most of the entrepreneurs are literates and educated.

3. Emphasis on the development of industrial development and related supports should established area wise in connection with the requirements of the people in every area.

4. Industries established in the past which are less in number can be bounced back by converting the traditional practices of management into modern in a strategic way.

5. Financial discipline with respect to risk analysis, price analysis and proper financial management can exclusively be concentrated and conveyed through respective financial institutions with whom the entrepreneurs are connected with.

6. The purpose of saving should be segmented and education for the expansion and development of the business through proper utilization of the revenue saved can lead to the sustainability.

7. Flawless transmission and distribution of electricity, legitimized policies and processes of sanctioning loans, transparency in land supply and proximity of telecommunications are highly recommended as the significance of the same to the performance is quite positive. Specifically energy has to be provided for the enterprises up to their requirement.

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Covid-19 Pandemic Preparedness of Organizations and its Impact on Digital Maturity

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Abstract

Covid-19 pandemic has hit each and every industrial sector globally. The sudden lockdown imposed by nations has severely affected business dynamics. Some businesses have transformed their operations so as to adapt to new environment and sustain in such environment. However, many other businesses were not prepared for such events and met their designed fate. As a result of unpredictability and interruption, businesses must now focus on building resilience into their operations. The pandemic's important lesson has been needing of business resiliency, as companies strive to guarantee that they can continue operating in event of another calamity. Business has clearly moved to digital platforms for commercial, educational, and personal objectives leading to discussions globally on digital maturity. As a consequence, customers no longer expect just the same experience they had previously. They now considerably exhibit greater digital expectations. This is why all organizations, regardless of location or size, must accelerate their digital adoption and restructure their processes in order to meet customers where they are now and deliver the experience they mandate. Objective of this study intends to study effect of lockdown situation on digital transformation that various organizations underwent to sustain in new environment. The study aims to explore which industries transformed digitally more quickly than others and its impact on current perceived digital maturity of the organization. From a methodological perspective, a structured questionnaire is prepared to collect primary data from employees of various industries. 124 responses were collected and analyzed. The findings of study will help organizations to develop sustainable practices in such type of situations. Limitations are also discussed which can be considered for resolution in future studies.

Keywords: Covid-19 Pandemic, Digital Maturity, Digital Transformation, Lockdown, Organizational Preparedness

Introduction

Individuals and businesses alike have become more conscious of the necessity of digital connection, technology, services, and solutions as a result of the COVID-19 pandemic. Although the digital change of society and business began long before the pandemic, the health catastrophe that began in January 2020 forced the movement to become more general.

The digital transformation process is currently a vital instrument for improving the efficiency and competitiveness of businesses that are always seeking for new ways to increase their output. Technology that enables the integration of heterogeneous systems and the creation of digitally controlled networks of autonomous devices as well as sensors, as well as the Internet of things and a variety other solutions are widely used in organizations (e.g., 3D printing). Changing information systems and new technologies like cloud computing, big data analytics, and the Internet of Things have made it possible to access any information at any time and from any location. The consequence is that custom-made or limited products may be produced affordably and easily, and they can be tailored to meet the exact needs of the customer. According to a 2020 worldwide study (McKinsey, 2020), the COVID-19 pandemic-induced acceleration of digitization in business is large and frequently measured in 'years'. The way businesses are conducted has changed, for example, as customer demand for online services and sales/purchases have increased, as have the acceptance of remote working and the movement of corporate assets to the cloud. As a result, business models have evolved.

Working conditions have improved for today's workforce as a result of constant innovation and improvement inside the workplace itself. Digital innovations including smart technology, artificial intelligence (AI), cloud computing, robotics, and the Internet of Things (IoT) are increasingly changing how we work and generating questions about the future of employment and organizations. A company's business model must be updated and altered in order to remain competitive in the face of rapid change. In the meantime, the development of sophisticated technology has transformed the kind of talents and competencies necessary in the workplace, forcing a paradigm shift among people, teams, and organizations.

Literature Review

While digital transformation is frequently addressed in corporate contexts, it is also explored in social contexts. However, the term "*digital transformation*" does not only relate to a technological transition. Stolterman and Fors (2004) define digital transformation as "*the transformations that digital technology brings about or impacts in all spheres of human activity.*" Solis (2017) defines digital transformation as "*the realignment of, or new investment in, technology, business models, and processes with the goal of creating new value for consumers and workers and competing more effectively in an ever-changing*

digital market." From an organizational standpoint, digital transformation may be thought of as a significant and accelerated change in processes, activities, competencies, and models. It enables businesses to capitalize on the changes and possibilities brought about by digital technology.

Schlepp (2019) defines innovative usage of digital technology as *"the novel application of digital technology to address traditional challenges in unique ways and enable novel sorts of innovation."* From a sociological standpoint, digital transformation refers to the process by which humans reshape the way society functions by their interpretation and comprehension of society, which includes the use of digital technology in daily life.

Lin et al. (2013) performed an empirical study in Taiwan with the goal of implementing a maturity model based on the Singapore Smart Industry Readiness Index. Cluster analysis was used to determine the maturity of Industry 4.0 in Taiwan. The investigation resulted in the classification of 80 Taiwanese organizations into four groups. According to the study, a high association exists between technology, procedure, and organization. The majority of firms were judged to be immature or underdeveloped, necessitating more growth in digital transformation. The study indicated that the Singapore Smart Industry readiness index is appropriate for self-assessment in Taiwanese businesses.

Employee well-being and resilience are crucial in the face of rapid changes in both work and technology, as seen by the current COVID-19 outbreak. Digital transformation is a new and urgent need, but rigorous research may be utilized to understand these growing trends. There has been a lack of emphasis dedicated to employee-related aspects of digital transformation in recent studies and analyses of the subject. There are a number of crucial gaps that need to be bridged in order for an organization's total digital transformation to be successfully completed by the authors of this article with the hope that they can identify and combine the critical parts of digital transformation. Research from a wide range of fields was analysed, and conclusions were compiled into a multi-level framework. Technology adoption, perspectives and attitudes toward technological change, skills and training, workplace resilience and adaptability, and work-related well-being are the five overarching determinants for effective digital transformation among employees at the individual level. In order to achieve digital transformation at the group level, they identified three important variables: team communication and collaboration, workplace connections, and team identity, as well as team adaptability and resilience. Organizational digital transformation may be aided by focusing on leadership, human resources, and culture/climate.

Wadhwan and Gupta (2020) examined the influence of valuable and relevant information on recruiters' intentions to utilize LinkedIn throughout the recruiting process. A standardized questionnaire was used to collect data from 125 recruiters in Delhi and

the National Capital Region. A factor analysis was conducted to ascertain the various qualities of LinkedIn as seen by recruiters. The findings indicated that the perceived utility and relevance of material provided on LinkedIn had a substantial impact on individuals' intentions to utilize LinkedIn for recruiting.

Wernicke, B., et al (2021). Their study sought to develop a mechanism for assessing construction sites' digital maturity. The proposed framework contains evaluation areas that define the development range of digital technologies, and an assessment technique that guides assessors. The framework's purpose is to help decision-makers enhance digitally-based site operations while taking organizational concerns into account (individuals, technologies, organizational structure, goals, and environment). Digital maturity refers to a site organization's ability to examine and deploy digital technologies, as well as manage them systematically inside the permanent company. Thus, digital maturity is the capacity to monitor and incorporate organizational repercussions into digitally enhanced site development processes. At its most advanced, the framework decides if a site is integrated into the firm's long-term project portfolio, potentially allowing digital transformation.

Research Methodology

The study's primary purpose was to determine the level of digital maturity of all participants working in different non I.T enterprises.

Hypotheses of the study are framed based on Literature review and experts' view.

H_1- Type of Industry and Employee Perception of Preparedness for digital transformation are significantly related.

H_2- Type of Industry and Employee Perception of digital maturity of organization are significantly related.

H_3- Employee perception of Preparedness of organization for digital transformation and their digital maturity perception are significantly positively correlated.

The study is conducted in Pune city. Sample unit for this study is Employee of any non IT organizations who have at least 1 year of experience with the current organization. The purposive sampling technique is used to select samples. More than 200 employees were requested to respond to the questionnaire, however only 134 employees from various industries like Automobile, pharmaceutical, retail and education to name a few responded to the structured questionnaire. Out of 134 responses 4 responses had to be discarded because they were incomplete with more than 30% (of total questions) missing values. 6 other responses had been discarded because they were unengaged responses. Total 19 questions are there in the questionnaire. Around 80 of the responses are collected by meeting the sample units personally at their offices and remaining 54 responses were collected through Google Form. The data is analyzed in SPSS through appropriate statistical tools. For Secondary data past research works were reviewed.

Data Analysis and Discussion

Reliability of the questionnaire

Cronbach's alpha coefficient was observed to check the reliability of the questionnaire. The result is shown below.

Table no. 1 Reliability Statistics

Cronbach's Alpha	N of Items
.892	19

The reliability of the scale was investigated in SPSS. The Cronbach's alpha value is checked and it is found to be greater than 0.7. Thus the questionnaire is considered reliable.

Descriptive Statistics

Table no. 2 Descriptive Statistics- Preparedness of the organization for digital transformation

	N	Minimum	Maximum	Mean	Std. Deviation
My organization could immediately adapt to lockdown situation and conducted business activities through digital infrastructure	124	3.00	5.00	4.1371	.81982
My organization sustained during lockdown situations because organization to some extend was prepared for online/ digital business activities even before lockdown was imposed	124	2.00	5.00	4.1371	1.10678
Lockdown did not affect my organization's cash flow as organization have had already adopted some of the digital transformation strategies (such as available online for sales, work from home strategy etc.)	124	1.00	5.00	3.7258	1.36351
Overall Mean				4	

From table no.2 Descriptive Statistics it was observed that the overall mean of the preparedness subscale is 4. It indicated that most of the respondents feel that their organization have had enough resources and infrastructure to face the challenges of pandemic.

Table no. 3 Descriptive Statistics- Digital Maturity of the organization

	N	Minimum	Maximum	Mean	Std. Deviation
Employees have enough knowledge and skills in dealing with digital technologies	124	2.00	5.00	3.7661	1.04461
Employees and related stake holders receive appropriate training on digitalization from my organization.	124	3.00	5.00	3.7258	.69069
Employees have favourabale attitude towards digitalization	124	2.00	5.00	4.3145	1.02304
Employees (in general) are ready to receive further training on new technology	124	2.00	5.00	4.1774	.98813
Organization has up to date infrastructure required for digital transformation (going online from offline)	124	1.00	5.00	3.8629	1.33334
My organization has enough and adequate digital equipment and software required for digitalization	124	1.00	5.00	3.5887	1.16180
In My organization adequate technical support is provided to all employees	124	1.00	5.00	3.7661	1.28220
My organization is financially self-sufficient to establish and maintain digital infrastructure required	124	1.00	5.00	3.8629	1.22531
My organization has efficient procurement and maintenance system for digital technologies	124	1.00	5.00	3.7258	1.25807
In my organization standard operating procedure exists about the usage of digital infrastructure	124	1.00	5.00	3.5484	1.16420
My organization's culture supports adoption of new technologies whenever need arises	124	1.00	5.00	3.4113	1.37936

My organization's culture is open to new technologies	124	2.00	5.00	3.5887	1.37936
My organization's culture supports inculcating change whenever required	124	2.00	5.00	3.7258	1.01484
Employees in my organization can communicate openly and can get support from supervisor and colleagues	124	2.00	5.00	3.5887	.89272
Overall Mean				3.8	

Table no. 3 shows that overall mean of digital maturity subscale is 3.8. It indicates that in employees' perception their organizations are digitally matured and can cope up with challenges created due to uncertain situations such as Covid-19 pandemic. The table also shows that the statement "Employees have favourabale attitude towards digitalization" has got highest mean value among all other statements.

Hypothesis Testing

H1- Type of Industry and Employee Perception of Preparedness for digital transformation are significantly related.

To test this hypothesis one way ANOVA is used in SPSS. The result is shown in table no.4 below.

Table no. 4. ANOVA- Industry and preparedness for digital transformation

		Sum of Squares	df	Mean Square	F	Sig.
Prepared-ness	Between Groups	23.151	2	11.575	28.804	**.000**
	Within Groups	48.627	121	.402		
	Total	71.778	123			

Table no. 4 shows that the significance value of F test (p<.01) is less than .01. Therefore we fail to accept null hypothesis. Thus we accept H_1. In simple words as industry changes employees' perception of preparedness for digital transformation also change significantly.

H_2- Type of Industry and Employee Perception of digital maturity of organization are significantly related.

To test this hypothesis one way ANOVA is used in SPSS. The result is shown in table no.4 below.

Table no. 5. ANOVA- Type of Industry and Employee Perception of digital maturity

		Sum of Squares	df	Mean Square	F	Sig.
Digital Maturity	Between Groups	63.150	2	31.575	67.726	**.000**
	Within Groups	56.412	121	.466		
	Total	119.562	123			

Table no. 5 shows that the significance value of F test (p<.01) is less than .01. Therefore we cannot accept null hypothesis. Hence H_2 is accepted. This means that employees' perception of digital maturity of the organization changes as per their type of industry.

H_3 - Employee perception of Preparedness of organization for digital transformation and their digital maturity perception are significantly positively correlated.

This hypothesis is tested using Pearson's correlation. The result of the test is shown below in table no. 6.

Table no. 6- Correlation- Preparedness and Digital Maturity

		Preparedness	Digital Maturity
Preparedness	Pearson Correlation	1	**.974**[**]
	Sig. (2-tailed)		**.000**
	N	124	124

[**]. Correlation is significant at the 0.01 level (2-tailed).

Since the significance value is less than .01 (p<.01) we fail to accept null hypothesis H_0 - Employee perception of Preparedness of organization for digital transformation and their digital maturity perception are not significantly positively correlated. This we accept H_3.

Conclusion

The Covid-19 pandemic has hit almost every Industry and business in entire globe. Many businesses could not sustain because they could not manage the sudden changes that environment has created for them and thus they have to either shut their operations down or sell their business. This means that such businesses did not have appropriate change management system in place. The findings of this study showed that organizations' preparedness perception for digital transformation and perception of digital maturity of organization differ as per type of Industry in which organization is operating. Finally preparedness of organization and digital maturity are strongly positively correlated. To conclude it can be said that organization which were well adverse with digital technologies could sustain the lockdown phase and could come up with create ways of doing business in new normal situation imposed by Covid-19 pandemic. Digital transformation offers a potential to strengthen solidarity throughout the organization and within the divisions but it should not deepen divisions and disparities between high- and low-performing divisions. From our observation we can say that the implementation and acceptance of digitalization should not be limited to only enterprises in urban areas but the focus should also be on rural and semi urban areas. it is vital to close the digital barrier between rural and urban enterprise functional circumstances; establish digital cohesiveness through outreach to as many small and medium-sized enterprises (SMEs) as feasible and prevent the negative externalities that impact the digital change that may have on employment and on labor market.

The small sample size is the major limitation of this study. The study is based on employee perception therefore actual digital maturity may slightly different than what it is in reality. While this study has limitations, it also opens various avenues for further investigation.

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