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REMEMBERING ROKKAM RADHAKRISHNA

YOGINDER K. ALAGH*

R. Radhakrishna

Radhakrishna passed away on Friday, 28 January 2022, in the morning. He had a renal problem but was very active in the follow up to his work as Chairman of Andhra Pradesh Agriculture Commission, particularly on organic farming. He was a stalwart of the Sardar Patel Institute of Economic and Social Research, where he started his career. I got his CV dusted out by the Admin Officer, and found that he was born on 10 October 1942. If one believes in reincarnation, he was probably a Fighter Pilot in the Second World War, for he showed great tenacity in pursuing his objectives, right up to the end. He did his BSc and MSc and MA from one of the truly innovative programmes of studies at the Andhra University at Waltair started by my friend, the Late Professor Sarveswara Rao. This University was founded by the Late President Sarvepalli Radhakrishnan. Rokkam Radhakrishna was then to go to the Gokhale Institute of Politics and Economics at Pune and do his Doctorate, under the Late Professor P.N. Mathur. Prof. Mathur was to fall out with the Servants of India running the Institute and, as he went abroad, we were happy to poach his extraordinary flock for Gujarat. Radhakrishna was to come to the Sardar Patel Institute. His friend, S.R. Hashim, was picked up by us for M.S. University at Baroda and would spend his holidays with us at Ahmedabad. He later joined the Narmada Planning Group, of which I was Vice Chair, as full time member, then went on to be Ambassador to Kazakhstan, and then Member Secretary of the Planning Commission. Atul Sarma was taken by us at Ahmedabad. Our student mascot was L. Tombi Singh from Manipur. He never had money and we would scrounge the barrel to keep him from starving. He made it as a student with Radhakrishna and Atul Sarma and later I found him an 'honest' politician in the North East. Radhakrishna and Atul married at roughly the same time: his wife Rani, Atul's wife Neebha and Kashyap's wife Raksha. I used to joke that they

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would draw lots to decide who would get Alagh Sab as their guest, for I had gone on deputation to the Planning Commission, with the understanding that I would also spend time at the Institute.

Radhakrishna's paper on the Strotz model of Demand Theory applied to Budgetary Consumer Survey data was accepted at the World Econometric Society Meeting. The Ford Foundation had given a grant for Indian scholars to attend global academic meetings which was parked in Delhi. They would only send their man, even though he didn't have a paper; then I honestly admonished them and we raised money for Radhakrishna to go, which he did and his paper was published there. When he came back, he showed that practical streak in him and told me he wanted to do some socially relevant work. The Chairperson of the Gujarat Nashabandhi Mandal came to meet me and told me she could give the Institute the princely sum of Rs. 5000 to find out the evil effects of Nashabandhi, by which she meant drinking liquor. I told her that we don't know the effects and can't find out because drinking is prohibited. She said somewhat contemptuously: "That's alright; my social workers will take you to the Darudas in the slum in 'Gul bai nu Tekra'." I told Radhakrishna: "You want to do practical work, go ahead." He excitedly accepted. The Mandal had given a similar grant to a politico who wrote a report in 15 days and got his grant. Radhakrishna was to take two years to do the Survey. Studying the economy was also important, so time variant data was needed. He came to the conclusion that it was not drinking which led to poverty but the trends of the city economy. The men who drank did not give less milk to their children or beat their wives more often, than the ones who didn't drink. The Nashabandhi Mandal got a fit when they got the Report. Radhakrishna kept on reminding them for comments. He never got them, nor permission to print the Report. He kept on pushing me and we followed through. When nothing happened for six months, I advised him to get 500 copies stencilled and send them for 'comments'. He did that. Now the Government changed at Delhi. It was Morarji Bhai's first Press Conference as PM. Tushar Bhatt, TOI's Editor, was there and raised his hand. Hasmukh Shah, PA to the PM, said: "Yes Tushar". He said, "You Mr. PM say prohibition is necessary to remove Poverty. But a detailed field study at the Sardar Patel Institute at Ahmedabad shows this not true." Morarji bhai didn't like Tushar anyway, since his father was a Trade Unionist, and snapped at him. "I know the Sardar Patel Institute. That study shouldn't have been done there. If it was, it should not have been printed. Next question."

They all came trooping to my office in the Planning Commission. I was to come back to Ahmedabad, but Lakdawala Saheb and HM Patel were to keep me back. I told the journalist crowd that at some places the full truth can be spoken. Myron Weiner in 1978 in an article in the *Economic and Political Weekly* was to call this as one of the few interventions of social science which made a difference.

Radhakrishna had, with Atul Sarma, collected weekly consumer price data for many years (Data Archive in our Library will have it) and in a famous paper in *Social Scientist* shown that inflation hurts the poor more than the rich. Also, their income and price elasticities were to be used for the Alagh Poverty Line Task Force in 1977. The FAOs AT 2000, where I was an Expert with Harvard's Peter Petri and Oxford's David Witcombe, also used this model for projections with and without redistribution.

I was invited to a Seminar at the Hague, organised by Jan Tinbergen, to 'solve' the problem of unemployment and poverty -- 'solve' in the sense of 'intellectually resolve it'; and the Seminar with ten experts from the developed countries and ten from poor countries went on for three weeks. My coauthor was Radhakrishna's *chela*, GVSN Murty, and our paper used his income and price elasticities for the rich and poor separately. It was published by Eric Thorbecke and his colleagues in a very influential volume (Alagh et al., 1984).

Radhakrishna was then suggested for the Chair of the Statistics Commission set up by me from the Planning Commission on suggestion from Vijay Kelkar. That was accepted and we kept on pushing his name for more terms in which he was to strengthen our statistical establishment. He was Director, Indira Gandhi Institute of Development Research at Mumbai and developed the Doctoral programme which was started there by Kirit Parikh. Any serious examination will show that they don't make them like him anymore. He will remain a Role Model for a long time.

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We deeply mourn the sad passing away of Professor R. Radhakrishna who was an Advisory Board member of *Anvesak* in the last two years.

— Subrata Dutta
Editor

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DEVELOPMENT OF ECONOMIC AND SOCIAL INFRASTRUCTURE IN JAMMU AND KASHMIR

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Abstract: The economy of the Union Territory (UT) of Jammu and Kashmir (J&K) has been facing many challenges. Foremost among them are political instability (millitancy), poor financial condition, tough terrain, harsh climatic conditions and relative isolation. Moreover, the region is suffering from relatively poor and lopsided infrastructural development. The paper evaluates the development of economic and social infrastructure at the district and regional levels in the newly created UT of J&K, which is one of the least studied areas in India. An attempt has been made to identify the districts which are lagging behind in terms of infrastructure development and thus need government intervention. In this study, a multidimensional approach has been adopted and two indices, namely, Economic Infrastructure Development Index (EIDI) and Social Infrastructure Development Index (SIDI) have been constructed to measure the district level development of infrastructure. Based on the indices values, the districts are ranked and classified into three development categories: highly developed, medium developed, and less developed. It is found that stark differences exist across the districts in the levels of development of both economic and social infrastructure. Second, infrastructure facilities are highly concentrated in the two capital districts of the UT, namely, Srinagar and Jammu districts. Third, districts, namely, Kupwara, Poonch, Ramban and Reasi, are lagging behind in terms of both economic and social infrastructure development. Fourth, districts located in the Jammu region are lagging behind compared to the districts located in the Kashmir region in terms of both economic and social infrastructure development. The study suggests that additional resources should be allocated to develop socio-economic infrastructure in less developed districts of the UT, in general, and newly created districts of the Jammu region, in particular, if the government intends to promote balanced regional development in the UT of J&K.

Keywords: Economic infrastructure, Social infrastructure, Regional disparities, Inter-district disparities

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1. Introduction

Regional differences in various dimensions of socio-economic development is a global phenomenon. However, the issue is more pronounced and glaring in developing countries than in advanced countries. In the Indian context, regional imbalances received special attention, and concerted efforts have been made during the planning period to remove the existing regional disparities in the level of socio-economic development and to achieve balanced regional development. However, despite seventy years of planned economic development, wide inter-state and intra-state (inter-district) disparities in the level of socio-economic development continue to exist in the country. The issue of regional differences in different dimensions of socio-economic development has been an extremely sensitive issue for the newly formed Union Territory (UT) of Jammu and Kashmir (J&K). It is an important cause of social and political conflict between the two regions of the UT, namely, the Jammu and Kashmir. Allegations for the neglect of one region or the other have been raised from time to time by the members of different political parties and social workers. The political leadership and eminent social workers from the Jammu region claim that the government has been allocating more funds to the Kashmir region for developmental purposes because of its political dominance. The unbalanced development of the two regions, unequal excess of political power and unequal resource distribution has led to the demand to create a separate state for the Jammu region.

Achieving balanced regional development amongst the three regions of the erstwhile state of J&K and their districts has been one of the key objectives of the economic planning initiated in the J&K in the post-independence period, and several efforts were put in this direction. In the post-independence era, various high-level commissions and committees were constituted by the government (Gajendragadkar Commission, 1968; Jha Committee, 1975; Godbole Committee, 1997; State Finance Commission, 2006) to examine the regional disparities in the level of socio-economic development and to suggest appropriate measures to remove the same. The State Finance Commission studied the extent of inter-district and inter-regional differences in the level of socio-economic development and submitted its report in 2010. The commission found that the districts located in the Kashmir region are relatively better developed as compared to the districts located in the Jammu region. The commission also examined the resources allocated between the two regions of the UT, namely, Jammu and Kashmir, during the period of 8th, 9th, 10th, and 11th five-year plans. The commission found that less funds were allocated to the Jammu region as compared to the Kashmir region for developmental purposes. To compensate for past injustice, the commission recommended that an additional ten percent of resources should be allocated to the Jammu region in the next ten years. In the post-independence era, many programmes/schemes were implemented in the erstwhile J&K state to promote development in the backward regions and to achieve balanced regional development (through Border Area Development Programme, Backward Region Grant Funds, Hill Area Development Programme, etc.). However, government efforts have achieved only partial success, and significant inter-district and inter-regional differences in various dimensions of socio-economic development continue to exist in the UT of J&K, which is an important cause of growing regional conflict.

2. Research Questions and the Concept of Infrastructure

Against this background, an attempt has been made in the present study to assess the district as well as regional level development of infrastructure in the newly formed Union Territory of J&K. An attempt has also been made to identify the districts which are lagging in terms of infrastructure and need government intervention to remove the deficiencies. Understanding the district level development of infrastructure would assist the policymakers in framing appropriate regional

development policies which improve the availability of basic infrastructural facilities in the lagging regions and reduce the regional differences in the level of infrastructural development. The findings of the study may also help the policymakers to achieve balanced regional development within the capacity of UT's limited resources. Reduction of regional disparities in infrastructural development is essential for maintaining national integration, political stability and unity of the UT. To fulfil these objectives, we may ask the following research questions: (a) What is the level of infrastructure development in the districts and regions of UT of J&K? (b) Which districts are lagging in terms of infrastructure development and what are the reasons for their backwardness? (d) How have disparities changed between 2008-09 and 2016-17?

Infrastructure is a social concept of certain unique categories of inputs that contribute to economic development by increasing productivity and providing amenities, thereby enhancing the quality of life (Ghosh and De, 1998). In general, "infrastructure" refers to the physical framework of facilities through which goods and services are provided to the public. Infrastructure is an umbrella term for various activities/facilities required for carrying out economic activities. In its broadest sense, the infrastructure sector covers a wide spectrum of services such as transportation of various types (roadways, railways, airways, and water transportation), generation, transmission, and distribution of power, telecommunication, irrigation, banking, port handling facilities, water supply, sanitation, sewage disposal and provision of education and health facilities. Most of these facilities have a direct impact on the working of the business enterprises, while other facilities are essential from the societal point of view. A strong infrastructure base is a prerequisite for the sustained economic development of a region. Infrastructure contributes to economic development both directly by acting as an input in the production process and indirectly by creating positive externalities. From a brief literature review, it has been observed that the development of infrastructure has been studied extensively at the all India level, state level and even at the district level. In the Indian context, empirical studies conducted to highlight the inter-state and intra-state (inter-district) disparities in the availability of basic infrastructure facilities include Baru (1993); Ghosh and De (1998, 2004), Bharkar and Bhargava (2003), Majumder (2003), Raychaudhuri and Haldar (2009), Sarkar (2009), Patra and Acharya (2011), Mothkuri (2011), Goswami and Dutta (2012), Ohlan (2013), and Bagchi (2017). However, to the best of our knowledge, no in-depth study has been conducted in the UT of J&K that highlights the existing inter-district and inter-regional differences in the level of infrastructure development.

3. Background and the Present State

The erstwhile state of J&K (now UT) was formed in 1947. The J&K has five regions. Pakistan controlled two of its regions illegally, while India controlled three regions. Both the countries, however, put a claim on the entire state. Thus, the erstwhile state of J&K has been a source of contention and debate. From a political standpoint, J&K has become a war zone. The conflict has severe effects on the political, economic and social development scenario of the UT. On 5th August 2019, the BJP-led NDA government repealed the Article 370 of the Indian constitution (which was giving a special status to the erstwhile state of J&K) and bifurcated the state into two Union Territories, namely, Union Territory of Jammu & Kashmir and Union Territory of Ladakh. The UT of J&K is located in the northernmost part of the Indian Union. The UT spreads over 422114 sq. km. of area, accounting for 1.28 percent of the country's total geographical area. The estimated population of the UT of J&K, according to the 2011 Census, is 1.22 crore, accounting for 1.01 percent of the country's total population.

There are several administrative divisions of UT of J&K. At the macro level, the UT is divided into two divisions/regions, namely, Jammu and Kashmir. Both the divisions are further divided

into ten districts. The district, namely, Jammu, Doda, Kathua, Kishtwar, Rajouri, Ramban, Samba, Poonch, Udhampur, and Reasi, belong to the Jammu Region. The Kashmir region comprises the following ten districts: Anantnag, Baramulla, Bandipura, Budgam, Ganderbal, Kulgam, Kupwara, Pulwama, Srinagar, and Shopian. Significant disparities exist across the regions and districts in all the dimensions of socio-economic development. The two regions of the UT, namely, Jammu and Kashmir, have different levels of socio-economic development with entirely different problems. The climatic conditions, resources endowment, topography, landscape, culture, language, religion, industrial development, political and economic conditions, and demographic features vary between the two regions of the UT.

Geographically, the Jammu region is the largest and spread over 26,993 sq. km. of area, accounting for 62.15 percent of the UT's total area. According to the 2011 census, the total population of the Jammu region is 53.78 lakh, accounting for 43.84 percent of UT's total population.[1] The Kashmir region is spread over a 15,948 sq. km area, which comprises 37.85 percent of UT's total geographical area. The total population of the Kashmir region is 68.88 lakh accounting for 56.16 percent of UT's total population. Between 2001-11, the Kashmir region has registered a higher decadal growth rate of population (25.77 percent), compared to the Jammu region (21.40 percent). The population density of Kashmir is 432 persons/sq. km of the area, the corresponding figure for the Jammu region is 205 persons/sq. km of the area. The level of urbanisation is significantly higher in the Kashmir region (31.60 percent) compared to the Jammu region (22.19 percent). The total cropped area in the UT is 11,77,074 hectares. Jammu region accounts for 7,48,707 hectares or 63.60 percent of the total cropped area, and the Kashmir region accounts for 4,06,640 hectares or 36.40 percent of the total cropped area. The dependence on the agriculture sector is much higher in the Jammu region (41.80 percent) than in the Kashmir region (31.49 percent). As per data released by the Directorate of Economics and Statistics, 59.75 percent of forest cover area falls in the Jammu region, and 40.25 percent in the Kashmir region. The economic activities are also dissimilar in these two regions. The Kashmir region has a huge potential to produce horticulture products such as apples, cherries, walnut and almonds. The region is the largest producer of apples in the country.

The region is also renowned in the world for its handicrafts products such as carpets and shawls. On the other hand, the Jammu region is lagging both in horticulture and handicraft produce. According to the Tendulkar committee methodology for poverty estimation, during 2011-12, the incidence of poverty was relatively low in the Kashmir region (9.49 percent), compared to the Jammu region (12.63 percent). Politically, the Kashmir region is more dominant. Of 83 seats in the state assembly, the Kashmir region has 46 seats. Among the thirteen Chief Ministers appointed in the UT since 1965, twelve hailed from the Kashmir region, and only one from the Jammu region. The majority of cabinet ministers were also from the Kashmir region. Within the Jammu region, except Jammu, Samba and Kathua districts, all other districts are agricultural, backward, and possess the general characteristics of backwardness. The region has largely remained underdeveloped, owing to a number of reasons such as lack of natural resources, poor infrastructure and political neglect.

The two main dimensions of regional disparities in the UT of J&K are inter-district and inter-regional disparities. First, we shall highlight the regional differences in various dimensions of infrastructure development. The Kashmir region has a relatively better share in the UT's total stock of infrastructure relative to its share in the land area. According to the data released by the Directorate of Statistics and Economics, Government of UT of Jammu & Kashmir, the Kashmir region has 56.21 percent share in total road length maintained by the State Public Work Department. The road

[1] 1 lakh = 100,000.

length per 100 sq. km. of area (road density) of the Kashmir region (82.26 km.) is significantly higher than that of the Jammu region (38.85 km.). It has been found that around 49 percent of UT's total bank branches are located in the Kashmir region, and the region has about 62.0 percent share in total bank credit.

Kashmir region accounts for about 51 percent of the total electric installations (Digest of Statistics, Government of Jammu and Kashmir, 2017-18). The Kashmir region has rich irrigation facilities. Around 56 percent of the gross cropped area of the Kashmir region is having irrigation facilities compared to only 21.1 percent in the Jammu region. It is found that the distribution of educational infrastructure is relatively uniform between the regions of the UT. Data shows that 46.55 percent of total schools, 51 percent of UT's total teachers and 53.0 percent of UT's total classrooms are in the Kashmir region. Health-related infrastructural facilities are more or less evenly distributed between the regions of the UT. About 46.77 percent of the UT's medical institutions, 49.28 percent of the UT's total medical persons, and 56.21 percent of the UT's total beds in the medical institutions run by the government are in the Kashmir region.

Another important dimension of regional disparities in the UT of J&K is inter-district disparity. The variations in the availability of infrastructural facilities are higher at the district level than at the regional level. The evidence suggests that two capital cities, namely, Jammu and Srinagar accorded preferential treatment in the distribution of infrastructure development-related projects. Official data reveal the development of infrastructure is mostly concentrated in two capital districts of the UT, namely, Jammu and Srinagar. These two capital districts of UT are well connected with the rest of the country with air transport. Most of the public administrative services offices, commercial banks branches, better quality education and health institutions are located in these two districts. Data released by the Directorate of Economics and Statistics, Government of J&K in its annual publication entitled *Digest of Statistics* shows that during 2017-18, Jammu and Srinagar districts put together account for 20 percent of the total road length maintained by state Public Work Department (PWD). It has been found that Jammu and Srinagar districts together account for 35 percent of the total bank branches, 48.39 percent of bank credits and 59 percent of total bank deposits (Digest of Statistics, Government of Jammu and Kashmir, 2017-18). It is found that the number of bank branches located in the Jammu district alone is more than the total number of bank branches located in the bottom eight districts.

It has been observed that health facilities are highly concentrated in Srinagar and Jammu districts. Official data reveals that around 60 per cent of medical persons and 45 per cent of the UT's total beds available in the medical institutions run by the government are in Jammu and Srinagar districts (Digest of Statistics, Government of Jammu and Kashmir, 2017-18). The quality of health and educational facilities are much better in Jammu and Srinagar districts. Hospitals located in these two districts are well equipped with more supporting facilities as compared to the hospitals located in other districts. A large number of private hospitals, nursing homes, private clinics has been established in these districts. More specialised doctors are available in these two districts as compared to other districts of the UT. The concentration of infrastructural development in two capital cities has sharpened the inter-district disparities in all the spheres of socio-economic development. On the other hand, the majority of the districts of the UT, such as Kishtwar, Poonch, Rajouri, Ramban, Reasi, Doda, and Kupwara are underdeveloped, rural, agricultural, and non-industrial. These districts have received inadequate government attention and lagging behind in all the dimensions of infrastructure development. People living in these districts have to travel a long distance (250 km to 300 km) to avail health and other facilities available in the Jammu and Srinagar districts. The districts

situated near the Indo-Pak border, such as Poonch, Rajouri, Kupwara, and Bandipura, have suffered heavily on the economic front due to cross-border shelling and infiltration and these districts are also neglected by the government. A good proportion of the population living in these districts are deprived of these basic facilities.

The rest of the paper is organised as follows. The variables used and the methodology applied for constructing the indices of infrastructure development for each district are discussed in Section 4. Results of the principal component analysis are briefly presented in Section 5. The empirical findings of the study are reported in Section 6. The conclusion and some policy suggestions are presented in section 7.

4. Data Sources and Methodology

The study is carried out based on secondary sources of data. The district-level secondary data has been collected from the following official sources: District Hand Book of Statistics, Regional Digest of Statistics, Digest of Statistics and Regional Development Indicators — all published by the Directorate of Economics and Statistics, Planning and Development Department, Government of UT of J&K and Ladakh. However, data pertaining to banking infrastructure has been collected from the Reserve Bank of India's publication entitled *Hand Book of Statistics on the Indian States*. Data pertaining to educational infrastructure has been compiled from the National Institute of Educational Planning and Administration (NIEPA) publication entitled *District Report Cards*. Districts are chosen as a unit of analysis, and all twenty districts of the UT have been selected for the study. The data of district-level development of economic and social infrastructure has covered two periods of time — 2008-09 and 2016-17. In order to get reasonably appropriate results, the three-year averages for the period from 2007-08 to 2009-10 for all the variables of economic and social infrastructure are used for the reference period 2008-09. Similarly, the three-year average values for the period from 2015-16 to 2017-18 for all the variables of economic and social infrastructure have been used for the reference period 2016-17. Prior to 2006, Jammu & Kashmir had fourteen districts. During 2006-07, districts were bifurcated, and eight new districts (four each in Jammu and Kashmir region) were formed, bringing the total number of districts to twenty. Thus, reorganisation of the districts prevents us from going back beyond 2007-08 due to the non-availability of separate data for the newly created districts. While 2017-18 is the latest year for which the district-level data is available for most of the indicators of infrastructure development.

Infrastructural development is a multi-dimensional phenomenon. Following the Hansen (1965) approach and the World Bank (1994) approach, we have divided the infrastructure into two categories — economic infrastructure and social infrastructure. The former includes transport, communication, power, irrigation, and banking facilities, among other, while the latter mainly comprises education and health facilities. Two separate indices, namely, Economic Infrastructure Development Index (EIDI) and Social Infrastructure Development Index (SIDI), have been constructed for each district using weights derived from the principal component method. Keeping in view the availability and reliability of the data at the district level, the following six indicators representing the development of transport, communication, irrigation, power and banking infrastructure have been used to estimate the Economic Infrastructure Development Index (EIDI) for each district: (a) road length per 100 sq. km. of area, (b) number of post offices per ten thousand population, (c) number of commercial bank branches per ten thousand population, (d) per capita bank credit (Rs. lakh), (e) net irrigated area as a percentage of net area sown, and (f) villages electrified as a percentage of total census villages. Similarly, the following six variables representing the development of education and health infrastructure have been used to construct the Social Infrastructure Development Index (SIDI) for

each district: (a) number of educational institutions per ten thousand population, (b) number of classrooms per thousand enrolled pupils, (c) number of teachers per thousand enrolled pupils, (d) number of medical institutions per ten thousand population, (e) number of medical persons per ten thousand population, and (f) number of beds in the medical institutions run by the government per ten thousand population. Inter-census and post-census population figures for each district have been estimated using the compound annual population growth rate.

The composite indices can be constructed using many techniques such as ranking, indexing, Wroclaw Taxonomic method and UNDP method. However, one main drawback of these techniques is arbitrariness and allocation of equal weights. To overcome this drawback, the principal component method has been applied in the present study to generate mathematical weights for the selected indicators of infrastructure development. Several authors have used the principal component method to generate weights for the selected indicators while constructing the composite indices because of its suitability (Ghosh and De, 1998; Majumder, 2003, 2004; Sahoo, 2009). The principal component technique is based on variance criterion. Principal component analysis converts the original related variables into mutually independent new variables called components. These new variables are linear functions of the original variables and are derived in decreasing order of importance.

The following procedure has been adopted to compute weights for the selected variables. The extracted factor loadings of each component have been multiplying with its eigenvalue, and sum up. Only the absolute value of factor loadings have been considered, ignoring signs. Negative signs are treated as positive (Raychaudhuri and Haldar, 2009). The following procedure is followed to calculate the indices. The selected variables are standardised by dividing with district-wise (column-wise) standard deviation to make them unit free. The principal component method is applied on the normalized value (unit free value). The next step is to obtain factor loadings and compute weights for the selected indicators. The following formula has been applied to compute weights for the selected indicators:

$$W_{kj} = (\sum |l_{ij}| .E_j) / \sum ((\sum |l_{ij}| .E_{ij})$$

where W_{kj} = weight of the i-th indicator of infrastructure at j-th time, l_{ij} is the factor loading of i-th variables on j-th component, E_j is the eigenvalue of the j-th component. The composite index of infrastructural development has been constructed by multiplying extracted weight with the unit free value of the indicator.

$$CIDI_{ij} = \sum W_{kj} X_{kj}$$

where $CIDI_{ij}$ is the composite index of infrastructural development of i-th district at j-th time, W_k is the weight of the k-th variable, X_{kj} is the unit free value of k-th indicator at j-th time. The district having the highest index value is termed as most developed one and the district having the lowest index value is identified as least developed one. Based on the indices values, districts are classified into three development categories: Highly Developed, Medium Developed and Less Developed**.** The districts having composite index values equal to or greater than "Mean + 0.50*SD" are classified as highly developed, and the districts having index values less than or equal to "Mean – 0.50*SD" are categorised as less developed. In the same way, districts with the composite index values less than "Mean + 0.50*SD" and greater than "Mean – 0.50*SD" are identified as medium developed districts. The standard inequality measure like the coefficient of variation (CV) and Max-Min ratio have been used to estimate the extent of inter-district disparities in the level of infrastructure development. In the present study, an attempt has also been made to estimate the percentage of area and population covered by the districts falling within different categories of development.

5. Results of the Principal Components Analysis

As mentioned above, weights for the selected indicators are estimated using the principal component method. The results of the principal component method such as factor loadings, percentage of variance, eigenvalue and extracted weights for the indicators of economic infrastructure are presented in Appendix 1. Screen plot and eigenvalue rule have been applied to decide the number of principal components to be retained for further analysis. Only those components having eigenvalue equal to or greater than unity have been considered for generating weights for the selected indicators. It is noticed that, during 2008-09, two principal components having eigenvalue more than unity which jointly explains 72.40 percent of the total variation of the data have emerged. The net irrigated area as a percentage of net area sown has the highest loading on the first principal component, which explains 44.40 percent variance in the data, followed by per capita bank credit, road density and post offices per ten thousand population. These indicators are important in explaining the inter-district disparities in the development of economic infrastructure. The second principal component, which explains 28.0 percent of the total variance, is represented by the number of commercial bank branches per ten thousand population and villages electrified as a percentage of total villages.

As shown in Appendix 1, during 2008-09, the computed weights for the indicators of infrastructure development varied between 0.1081 and 0.1916. The net irrigated area as a percentage of net area sown has the highest weight (0.1916), and village electrified as a percentage of total villages has the lowest weight (0.1081). During 2016-17, two principal components that jointly explains 71.86 percent of variance have been considered to extract relative weights. Among the six infrastructure facilities, net irrigated area as a percentage of net area sown has the highest loading on the first principal component. Other indicators having higher loadings on the first principal component are per capita bank credit, road density, and village electrified as a percentage of total number of census villages. The second principal component, which explains 27.06 percent variation in the data, is represented by the number of commercial bank branches per ten thousand population and the number of post offices per ten thousand population. The results of the principal component analysis reveal that, during 2016-17, except for villages electrified as a percentage of total villages, all other variables are equally important in explaining the inter-district variations in the development of economic infrastructure. As shown in Appendix 1, during 2016-17, the extracted weight for the indicators of infrastructure development varies between 0.0941 and 0.1940. Per capita bank credit has the highest weight (0.1940), followed by net irrigated area as a percentage of net area sown (0.1918), number of commercial bank branches per ten thousand population (0.1764), number of post offices per ten thousand population (0.1746), road density (0.1695) and villages electrified as a percentage of total census villages (0.0941), respectively.

As regards social infrastructure (shown in Appendix 2), two principal components having eigenvalue greater than unity have emerged. The principal components together captures around 77 per cent variation in the data. During 2008-09, all the indicators of social infrastructure have higher loadings on the first principal component. During 2008-09, the computed weights for the selected indicators of social infrastructure varied between 0.1243 and 0.1864. The number of educational institutions per ten thousand population has the highest weight (0.1864), and the number of classrooms per thousand enrolled students has the lowest weight (0.1243). During 2016-17, two principal components with eigenvalue more than unity, which jointly explained 86.7 percent of variance, have emerged. The first and the second principal components explain 56.96 percent and

27.73 percent variation in the data, respectively. The extracted weights for the selected indicators of social infrastructure development during 2016-17 vary between 0.1498 and 0.1768. It is noted that except for medical institutions per ten thousand population, all the indicators are equally important in explaining the inter-district disparities in social infrastructure development.

6. Empirical Results

Table 1 below presents the Economic Infrastructure Development Index of each district, ascending ranking, and categories of the districts at two points in time, i.e. 2009-08 and 2016-17. As shown in Table 1, during 2008-09, the value of the Economic Infrastructure Development Index varies between 4.264 and 2.001. As expected, Jammu district with an index value of 4.264 was found the most developed district in the UT and occupied the first position, followed by Srinagar, Kulgam and Ganderbal districts, respectively. On the other hand, Kishtwar, with an index value of 2.002, was the least developed district in the UT with respect to economic infrastructure development and occupied the last position, preceded by Doda, Kupwara, and Poonch districts. In 2008-09, Economic Infrastructure Development Index had a mean value of 3.07. There were ten districts in the UT, namely, Anantnag, Budgam, Doda, Kishtwar, Kupwara, Poonch, Rajouri, Ramban, Reasi, and Udhampur, having composite index value below the mean value. The Max/Min ratio reveals considerable differences across the districts in the levels of economic infrastructure development

Table 1: Economic Infrastructure Development Index, Ranking and Classification of the Districts

Districts	2008-09			2016-17		
	Index	Ranks	Category	Index	Ranks	Category
Ananatnag	2.971	11	MD	3.049	13	MD
Baramulla	3.128	8	MD	3.307	11	MD
Bandipura	3.126	9	MD	3.350	10	MD
Budgam	2.952	13	MD	3.579	6	HD
Doda	2.385	19	LD	2.575	19	LD
Ganderbal	3.474	4	HD	3.592	5	HD
Jammu	4.264	1	HD	4.677	1	HD
Kathua	3.390	5	HD	3.553	8	HD
Kishtwar	2.001	20	LD	2.276	20	LD
Kulgam	3.502	3	HD	3.569	7	HD
Kupwara	2.493	18	LD	2.702	17	LD
Poonch	2.528	17	LD	2.598	18	LD
Pulwama	3.118	10	MD	3.365	9	MD
Rajouri	2.897	14	MD	3.001	14	MD
Ramban	2.784	15	LD	2.771	16	LD
Reasi	2.785	16	LD	2.950	15	LD
Samba	3.326	6	MD	3.826	3	HD
Shopian	3.301	7	MD	3.613	4	HD
Srinagar	4.197	2	HD	3.928	2	HD
Udhampur	2.962	12	MD	3.121	12	MD
Mean	3.07			3.27		
Max/Min Ratio	2.13			2.05		

Notes: HD = Highly Developed, MD = Medium Developed, LD = Less Developed
Source: Authors' own calculation (original data sources given in the methodology section)

The Economic Infrastructural Development Index of Jammu district (the most developed) is 2.13 times higher than the Kishtwar district (the least developed). During 2008-09, districts having index values equal to or greater than 3.350 are categorised as highly developed districts. The districts having index values equal to or less than 2.80 are identified as less developed districts. All those districts having index values between 3.35 and 2.80 are identified as medium developed districts. It can be seen from Table 1 that five districts, namely, Jammu, Srinagar, Ganderbal, Kathua, and Kulgam, are classified as highly developed districts in comparison with other districts of the Union Territory. Nine districts, viz., Anantnag, Baramulla, Budgam, Bandipura, Pulwama, Samba, Rajouri, Shopian, and Udhampur are identified as medium developed districts. The remaining six districts, namely, Doda, Kupwara, Poonch, Kishtwar, Ramban and Resai, are identified as less developed districts with respect to economic infrastructure development. The region-wise distribution of districts shows that five out of the six less developed districts are located in the Jammu region, and only one district, namely, Kupwara, is located in the Kashmir region. On the other hand, three of the five highly developed districts belong to the Kashmir region, and two districts, namely, Jammu and Kathua, belong to the Jammu region.

During 2016-17, the value of the Economic Infrastructure Development Index varies between 2.276 and 4.677. Again Jammu district is at the top of the hierarchy in terms of economic infrastructure development, followed by Srinagar, Samba, Shopian, and Ganderbal, respectively. On the other hand, Kishtwar is the least developed district and stands at the bottom, preceded by Doda, Poonch, Kupwara, and Ramban, respectively. There are wide differences across the districts in economic infrastructural development. The composite index of the most developed district, Jammu, is 2.05 times higher than that of the least developed district, i.e. Kishtwar. During 2016-17, eight districts, namely, Jammu, Srinagar, Budgam, Ganderbal, Kulgam, Kathua, Samba, and Shopian, are classified as highly developed. These eight districts spread over 21.04 percent of the total geographical area of the UT and occupy around 42.0 percent of the UT's total population. Of twenty districts, six districts, namely, Anantnag, Baramulla, Bandipura, Pulwama, Rajouri and Udhampur, are identified as medium developed districts. These districts occupy 35.81 percent of the total geographical area and 36.16 percent of UT's total population. The remaining six districts, namely, Kishtwar, Poonch, Doda, Ramban, Reasi, and Kupwara, are identified as less developed districts. These districts spread over 42.78 percent of the UT's total geographical area and occupy 21.84 percent of UT's total population.

Regional analysis shows that, during 2016-17, five of the eight highly developed districts are located in the Kashmir region, and three districts, namely, Jammu, Samba and Kathua, are located in the Jammu region, whereas five of the six less developed districts belong to the Jammu region, and only one district, namely Kupwara, belongs to the Kashmir region. Further, it can be observed from Table 1 that five out of ten districts of the Jammu region are identified as less developed. These five districts spread over 59.16 percent of the total geographical area of the Jammu region and occupied around 33 percent of the region's total population. During 2006-07, eight new districts (four each in Jammu region and Kashmir region) were created in the UT of J&K. The classification of the districts into different categories indicates that, during 2016-17, three of four newly created districts of the Kashmir region, namely, Ganderbal, Shopian, and Kulgam, are found to be highly developed, and one district, namely, Bandipura is identified as medium developed district. On the other hand, three of the four newly created districts of the Jammu region, namely, Kishtwar, Ramban, and Reasi, are identified as less developed districts.

It is noted that no big changes have occurred in the classification of the districts during the study period. However, Budgam, Shopian, and Samba districts have moved from the category of

medium developed districts to highly developed districts. To examine whether the districts have changed their relative positions in economic infrastructural development between 2008-09 and 2016-17, Pearson's Rank correlation coefficient is examined. The high as well as positive value of Pearson's Rank correlation coefficient between ranks (r = 0.91) reveals that there is a very high degree of stickiness in relative ranking positions of the districts in terms of economic infrastructure development over time. This suggests that the districts which were at the bottom during 2008-09 have precisely remained at the same positions even after nine years, and the infrastructurally best-endowed districts have remained at the top positions during both the periods of time.

In this study, an attempt has been made to identify the reasons that could have contributed to the relative backwardness of the districts and the extent of improvement required in the various indicators of infrastructure development. This information is important for allocating resources to improve basic infrastructure facilities in the lagging districts. The average value of various indicators of infrastructure development for all three categories of the districts has been calculated. The average value of the highly developed districts is taken as potential targets for the medium and less developed districts. It is found that less developed districts are lagging behind in all the dimensions of infrastructure development as compared to highly developed districts. During 2016-17, the average road density of the less developed districts is only 36.06 km. per 100 sq. km. of the area compared to 146 km. per 100 sq. km. of area in the highly developed and 90.86 km. per 100 sq. km. of area in medium developed districts. Thus, there is an urgent need to improve the road infrastructure in less developed districts. A huge increase in road density is required in less developed districts to attain the level of road density of high developed districts. It has been observed that many areas within the less developed districts remain disconnected for a long time during winters. Connecting these unconnected areas with the district headquarter would allow optimum utilisation of the UT's resources and promote sustained development in the UT. It has been observed that the less developed districts are lagging behind in banking infrastructure. On an average, there are 0.79 bank branches per ten thousand population in less developed districts compared to 1.24 in the highly developed districts. Thus, there is an urgent need to develop banking infrastructure in less developed districts of the UT. Irrigation is an important component of economic infrastructure. It has been observed that irrigation facilities are inadequate in the less developed districts. The average net irrigated area as a percentage of net sown area in less developed districts is 16.68 percent. This percentage is extremely low compared to 60 percent in highly developed districts, and 43 percent in the medium developed districts. Thus, the less developed districts require improvement in all the indicators of economic infrastructure to reach the level of highly developed districts.

Between 2008-09 and 2016-17, the Max-Min ratio declined from 2.13 to 2.06, indicating that disparities across the districts in economic infrastructural development has declined. We have also calculated the coefficient of variation for each indicator of economic infrastructure development. The value of the coefficient of variation exhibits that, during 2008-09, the value of the coefficient was highest in per capita bank credit (138.7 percent) and lowest for village electrified as a percent of total villages (7.72 percent). The value of the coefficient for other indicators, namely, number of post offices per ten thousand population was 57.19 percent, road length per 100 sq. km. of area was 82.04 percent, number of bank branches per ten thousand population was 36.93 and net irrigated area as a percentage of net area sown was 67.96 percent. The value of the coefficient of variation shows that except for villages electrified as a percentage of the total census villages, disparities across the districts were at a high level during 2008-09. During 2016-17, the inter-district disparity was highest in road density and lowest in the village electrified as a percentage of total village. Between 2008-09 and 2016-17, the value of the coefficient of variation has increased in cases of

road density, number of post offices per ten thousand population and number of bank branches per ten thousand population, indicating that disparities across the districts have increased in these indicators. On the other hand, the value of the coefficient of variation of per capita bank credit, net irrigated area as a percentage of net area sown, and villages electrified as a percentage of the total villages have declined, indicating that inter-district disparities have declined in these indicators of infrastructural development.

Table 2: Social Infrastructural Development Index, Ranking and Categories of Districts

Districts	2008-09			2016-17		
	Index	Ranks	Category	Index	Ranks	Category
Ananatnag	3.469	19	LD	4.367	16	LD
Baramulla	3.585	18	LD	4.732	8	LD
Bandipura	3.191	20	LD	4.202	19	LD
Budgam	4.412	6	HD	4.711	10	MD
Doda	4.230	9	MD	4.783	7	MD
Ganderbal	3.842	11	MD	5.020	3	HD
Jammu	4.837	2	HD	5.270	2	HD
Kathua	4.786	3	HD	4.981	4	HD
Kishtwar	3.560	17	LD	4.351	18	MD
Kulgam	4.070	10	MD	4.948	6	HD
Kupwara	3.720	13	LD	4.357	17	LD
Poonch	3.660	14	LD	4.416	14	LD
Pulwama	4.320	7	MD	4.722	9	MD
Rajouri	4.301	8	MD	4.406	15	LD
Ramban	3.735	12	LD	4.139	20	LD
Reasi	3.630	16	LD	4.485	12	LD
Samba	4.489	5	HD	4.960	5	HD
Shopian	3.635	15	LD	4.439	13	LD
Srinagar	5.507	1	HD	5.549	1	HD
Udhampur	4.615	4	HD	4.562	11	MD
Average	4.802			4.69		
Max/Min Ratio	1.73			1.32		

Notes: HD = Highly Developed, MD = Medium Developed, LD = Less Developed
Source: Authors' own calculation (original data sources given in the methodology section)

A brief perusal of Table 2 reveals that, during 2008-09, the value of the Social Infrastructure Development Index varies between 5.507 to 3.19. Srinagar district, with the composite index value 5.507, is the most developed district in UT and occupies the top position, followed by Jammu, Kathua, and Udhampur, respectively. On the other hand, Bandipura, with an index value of 3.19, is the least developed district in UT and stands at the bottom. During 2016-17, the value of the Social Infrastructure Development Index varies from 5.549 to 4.20. Srinagar, Jammu and Kathua districts occupy the top three positions, whereas Ramban, Bandipura and Kishtwar are the three less developed districts in terms of social infrastructure development. The inter-temporal transition of the districts reveals that the relative ranking position of the districts, namely, Baramulla, Ganderbal, Kulgam, Reasi, Anantnag, Shopian and Doda have improved. On the other hand, the relative positions of the districts, namely, Budgam, Rajouri, Udhampur and Ramban, have significantly

deteriorated. Further, it is observed that the relative positions of the districts, namely, Srinagar, Jammu, Bandipura, Samba, and Poonch, have remained unchanged.

During 2008-09, six districts, namely, Srinagar, Jammu, Kathua, Budgam, Samba and Udhampur are classified as highly developed. Nine Districts, namely, Anantnag, Baramulla, Bandipura, Kishtwar, Kupwara, Poonch, Ramban, Reasi, and Shopian are identified as less developed in terms of social infrastructural development. The remaining five districts, namely, Doda, Ganderbal, Rajouri, Kulgam and Pulwama, are classified as medium developed districts. During 2016-17, the districts having index values equal to or greater than 4.877 are categorized as highly developed districts. Six districts, namely, Srinagar, Jammu, Kathua, Kulgam, Samba and Ganderbal, have been identified as highly developed districts. These districts spread over 19.92 percent area of the UT and occupy 34.36 percent of the UT's total population. Among these five highly developed districts, three districts belong to the Jammu region, and two districts are located in the Kashmir region. Districts having composite index values less than 4.520 are identified as less developed. These districts are Anantnag, Baramulla, Bandipura, Kupwara, Poonch, Rajouri, Ramban, Reasi, and Shopian. These districts spread over 42.96 percent area of the UT and occupy 45.21 percent population. Among the nine low developed districts, four districts belong to Jammu region, and five districts belong to Kashmir region.

Districts having composite index values between 4.877 and 4.520 are classified as medium developed districts. These districts are Pulwama, Kishtwar, Doda, Udhampur and Budgam. These districts spread over 37.11 percent area and occupied 20.43 percent of population. No big differences across the different categories of districts have been observed in the number of classrooms per thousand enrolled pupils. During 2016-17, the average classrooms per thousand enrolled pupils are estimated at 78.95 in the less developed districts compared to 87.32 in highly developed and 86.48 in medium developed districts. However, there are some differences across the different categories of the district in the number of teachers per thousand enrolled pupils. There are 83.98 teachers per thousand enrolled students in less developed districts compared to 101.6 in highly developed and 96.05 in medium developed districts. There are sharp differences across the three categories of districts as far as health infrastructure is concerned. The most common yardstick to measure the development of health infrastructure is the number of beds and number of medical persons (doctors + nurses). It has been observed that both medium and less developed districts are lagging in terms of health infrastructure. During 2016-17, there are 6.22 medical persons per ten thousand population in less developed districts compared to 11.10 in highly developed, and 4.97 in medium developed districts. It is important to mention that the number of medical persons per ten thousand population in medium developed districts is even lower than that of less developed districts. It is found that less developed districts have 7.65 medical beds per ten thousand population compared to 14.07 in highly developed and 8.09 in the medium developed districts. It has been observed that medical facilities are insufficient in both medium and less developed districts. Special government efforts are required to improve the health facilities in these districts. Hospitals located in the less developed districts are lagging in terms of basic equipment and trained human resources. Increasing efforts should be made to develop quality health facilities in both medium and less developed districts. Between 2008-09 and 2016-17, the value of the Max/Min ratio has declined from 1.73 to 1.32, indicating that disparities across the districts in overall social infrastructure development has declined. During 2016-17, among the six indicators of social infrastructure development, the value of the coefficient was highest (85.69 percent) in the number of beds (per ten thousand population) in the medical institutions run by the government and lowest (24.4 percent) in the number of teachers (per thousand population). Between 2008-09 and 2016-17, the inter-district value of

the coefficient of variation has increased in the case of educational institutions per ten thousand population, medical institutions per ten thousand population and medical persons per ten thousand population, indicating that disparities across the districts in these indicators have increased. On the other hand, inter-district disparities in the case of the number of classrooms per ten thousand population, the number of teachers per thousand enrolled pupils and the number of beds per ten thousand population have declined.

Inter-Regional Comparison of the Levels of Economic and Social Infrastructure in the UT of J&K

Region-wise indices have been estimated by taking an average of the districts belong to each region. Table 3 presents the average value and inter-district coefficient of variation of the indices of social and economic infrastructure for two regions of the UT. An investigation of the regional analysis indicates that with regard to economic infrastructure the Kashmir region is better developed than the Jammu region at both points in time. Further, the value of the coefficient of variation reveals that the inter-district disparities are higher among the districts located in the Jammu region compared to the districts located in the Kashmir region.

Table 3: Average Value of the Indices and Coefficient of Variation across the Districts of Different Regions

Regions	Average Value of the Indices across Districts of Two Regions		Coefficient of Variation of the Indices across the Districts of Two Regions	
2008-09				
	Economic Infrastructure	Social Infrastructure	Economic Infrastructure	Social Infrastructure
Kashmir	3.22	3.97	13.84	16.53
Jammu	2.98	4.18	19.89	11.96
2016-17				
	Economic Infrastructure	Social Infrastructure	Economic Infrastructure	Social Infrastructure
Kashmir	3.40	4.70	10.22	8.47
Jammu	3.13	4.63	22.69	7.56

Sources: Authors' own calculation (original data sources given in the methodology section)

With regard to social infrastructure development during 2008-09, the Jammu region was better developed compared to the Kashmir region. However, during 2016-17, the Kashmir region is better developed compared to the Jammu region.

7. Conclusions and Policy Suggestions

Infrastructure development is a prerequisite for the sustained economic development of a region. In this study, we compared the districts and regions of the newly created UT of J&K in terms of their economic and social infrastructure development. We also attempted to identify the districts that are lagging in terms of infrastructure development and need government intervention. We have estimated two indices, namely, Economic Infrastructure Development Index and Social Infrastructure Development Index using weights computed from the most widely used mathematical techniques known as the principal component analysis. The results of the estimations indicate that wide disparities exist across the districts in the development of both economic and social

infrastructure development. The results reveal that infrastructural facilities are highly concentrated in the capital districts of UT, namely, the Jammu and Srinagar districts. These two districts occupy the top positions in terms of both economic and social infrastructure. We found that districts, namely, Doda, Kupwara, Poonch, Kishtwar, Ramban, and Reasi, are lagging behind in terms of economic infrastructure development and are classified as less developed districts. These districts are lagging in all the dimensions of economic infrastructure development. Road density is very low; irrigation facilities are inadequate; and banking facilities are limited. These districts have not benefited much from the development strategy adopted by the government. With regard to social infrastructure, districts, namely, Anantnag, Baramulla, Bandipura, Kupwara, Poonch, Rajouri, Ramban, Reasi, and Shopian, are identified as less developed districts. Further, the study reveals that districts, namely, Kupwara, Poonch, Ramban and Reasi, are lagging behind in both economic and social infrastructure development. Separate planning strategies have to be urgently outlined and implemented to develop basic infrastructure facilities in these underdeveloped districts of the UT. Adequate development of these districts requires government action to improve the basic infrastructure facilities such as transportation, communication, irrigation, banking, education and health facilities.

The basic focus of the development strategy should be on the expansion of infrastructure facilities both in the medium and less developed districts. It is important to mention here that both medium and less developed districts are lagging in health facilities. The private investment that could strengthen the health infrastructure has been found to be very low and negligible. Concerted efforts are required on the part of the UTs and central government to provide good quality health facilities in both medium and less developed districts so that the underprivileged can be benefited from the fruits of development. There is a need to allocate more funds to develop basic infrastructural facilities in the lagging districts of the UT in general and newly created districts of the Jammu region, in particular, to reduce the existing regional imbalances in the development of infrastructure facilities. The major policy thrust should be on making provision of transport, health, irrigation, and banking facilities in the districts located in the Jammu region. The development of basic infrastructure facilities would provide the boost required for self-sustained economic development. The development of infrastructure will create direct and indirect employment opportunities, which will, in turn, reduce poverty.

Due to weak financial position, the UT is not in a position to finance the entire required infrastructure-related projects single-handedly. Therefore, private sector investment in infrastructure development should be facilitated and encouraged. The government should develop necessary institutions to attract private investment in some areas where there is a scope for the private sector to play a role. Considering the poor financial health of UTs and low level of private investment in the core components of infrastructure such as transport, irrigation, banking, education and health, the central government needs to take necessary measures. The central government has to play a leading role in the development of infrastructure in the underdeveloped districts of the UT. More fiscal transfer from the centre and the state to the lagging districts to develop basic infrastructure facilities will expedite the overall development prospect of the regions. However, the only allocation of funds cannot help. What is required is the proper utilisation of scarce resources. Only with the judicious and transparent use of resources can we ensure that the funds allotted for the development of backward areas are optimally utilized.

Let us now highlight another important matter. The regular maintenance of the infrastructural assets must be given due importance. Poor maintenance and neglect of regular repair jobs lead to deterioration of road surface; siltation and cracks in irrigation channels; breakdown of generating,

transmitting or distribution network in the power sector; failure in telecommunication links; wastage of water supply; miserable and vulnerable conditions of schools and hospital buildings; etc. Proper identification of necessary projects, smooth and quick completion of construction as well as implementation of related work, proper operation and profitable management of the services, and regular maintenance of them would help the economy to have an efficient infrastructure. The government should ensure the disparities in the basic infrastructural development to be reduced. If disparities in infrastructural development are mitigated, disparities in the other dimensions of socio-economic development will automatically be narrowed down.

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Appendix 1

Results of the Principal Component Analysis of Economic Infrastructure

	2008-09			2016-17		
Indicators	**Loading (P1)**	**Loading (P2)**	**Weights**	**Loading (P1)**	**Loading (P2)**	**Weights**
Road length per 100 sq of area	0.698	-0.602	0.1871	0.735	0.345	0.1695
Number of post offices per ten thousand population	-0.630	0.613	0.1764	-0.596	0.622	0.1746
Number of bank branches per ten thousand population	0.596	0.724	0.1827	0.467	0.849	0.1764
Per capita bank credit (lakh)	0.701	0.498	0.1761	0.765	0.521	0.1940
Net irrigated area as percentage of net area sown	0.893	-0.336	0.1916	0.897	-0.284	0.1918
Percentage of inhibited census villages electrified	0.366	0.507	0.1081	0.395	0.213	0.0941
Percentage of variance explain	44.40	28.00		49.48	22.37	
Cumulative percentage of variance	72.40	-0.038		71.86		
Eigen Value	2.66	1.68		2.97	1.34	

Notes: P1 = Principal Component First, P2 = Principal Component Second

Source: Authors' own estimation (original data sources given in the methodology section)

Appendix 2

Results of the Principal Component Analysis of Social Infrastructure

	2008-09			2016-17		
Indicators	**Loadings (P1)**	**Loadings (P2)**	**Weights**	**Loadings (P1)**	**Loadings (P2)**	**Weights**
Number of educational institutions per ten thousand population	-0.825	0.505	0.1864	-0.95	0.132	0.1721
Number of classrooms per thousand enrolled pupils	0.603	-0.182	0.1243	0.571	-0.786	0.1656
Number of teachers per thousand enrolled pupils	0.777	0.203	0.1582	0.762	-0.392	0.1632
Number of medical institutions per ten thousand population	-0.688	0.594	0.1664	-0.846	0.078	0.1498
Number of medical persons per ten thousand population	0.761	0.587	0.1796	0.641	0.731	0.1726
Number of Medical beds per ten thousand population	0.861	0.384	0.1854	0.695	0.675	0.1768
Percentage of variance explain	57.36	19.55		56.96	27.73	
Cumulative percentage of variance	76.91			86.70		
Eigen Value	3.44	1.17		3.42	1.78	

Notes: P1 = Principal Component First, P2 = Principal Component Second

Source: Authors' own estimation (original data sources given in the methodology section)

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MANIAS, PANICS AND CRASHES: A PRODIGIOUS DEBT DEBATE

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Abstract: Whenever the news of financial and economic crises emerges, economists and financiers regress at "what went wrong?" and "why did markets lack resilience?" As the pandemic progresses into the second year, we are asking the same questions again. In pursuit of the answers, we find the previous pattern repeating over multiple episodes. Though these episodes take place in different locations, sectors, or conditions, it usually stays close to the precedents in the order of events, starting from "Manias" to "Panics" and eventually to "Crash". This paper is a theoretical review of the works relating to the role of credit-fuelled expectations in speculative credit excesses and covers studies in the pre and post liberalized era. In view of the three generations of crisis models, the paper deliberates on the irrationality of human beings, the part played by the banking sector, particularly financial innovation, and the volatility of financial markets in driving the financial crisis. The results make one significant manifestation that credit plays a vital role in determining the economic course and acts as an amplification mechanism for both up and downturns.

Keywords: Credit bubbles, Euphoria, Credit excess, Banking and financial crisis

One thing is certain that at a particular time a great deal of stupid people have a great deal of stupid money….. the blind capital as we call it, of the country is particularly large, and craving, it seeks for someone to devour it, and there is a 'plethora'; it finds someone, and there is 'speculation'; it is devoured, and there is 'panic'.

— Bagehot (1873)

1. Introduction

In his book, John Galbraith discusses how speculative manias and financial euphoria have, over the years, created bubbles that are unsustainable in the medium run, even if an illusion of growth is presented in the short run. The splurge that starts in the real estate or stock market or new financial innovations like mergers, takeovers, and leveraged buyouts soon extends in range and intensity. The speculation begins to build upon itself and generates its momentum. The drama of mass insanity seems to cover periods starting in the 17th century with the "tulipomania" and its trading on Amsterdam's first modern stock market. Galbraith remarks that tulips remain the most unusual instruments to have created such widespread interest, contributing to a mass delusion where, by

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1636, a tulip bulb could be exchanged for "a new carriage, two grey horses and a complete suite of harness" (Mackay, 1841; and Galbraith, 1990).

What may seem strange now was justified by the increasing prices of the bulbs; to extend that, money was borrowed to ride the speculative tide of tulip mania. In 1637, for no evident reason, the tide reversed; there was a rush to sell, a fall in prices, loss of investment and for the indebted players — bankruptcy. Today, many believe "Bitcoin" to be this century's Tulip-mania; the argument is that until crypto-currencies become a widely accepted payment method, it has only potential, no real value (Taskinsoy, 2019).

Other authors who confirm the above view are Shiller (2000) (Irrational Exuberance Theory) and Kindleberger (1978) (Manias, Panics and Crashes). They also emphasise the cognitive and psychological factors such as crowd mentality and herding, which coax people to behave differently as a group than as individuals. As Friedrich von Schiller states, "[a]nyone taken as an individual is tolerably sensible and reasonable-as a member of the crowd; he at once becomes a blockhead". In the episodes analyses, it is often evident that people base their market expectations on the actions of financial geniuses. There is a fascination that robust intellectual calculations and understanding back the scale of the financial operations and the amount of money involved. It is only after the speculative collapse does the truth emerging. It is akin to Bagehot's observation that "all people are most credulous when they are most happy" (Bagehot, 1873).

The present survey presents a theoretical perspective on the historical episodes of speculative bubbles. It highlights the prodigious impact of credit excesses and the banking sector patronage in the generation of the credit boom bubbles and subsequent financial, banking or currency crises. It also engages in a discussion of the Post-Covid scenario in view of the theories and models discussed.

2. The Speculative Bubbles: A History

The creation of bubbles is not a new phenomenon. Our economic history is strained by episodes classified as bubbles, dating long before the term joined the financial vernacular.[1] Consider the Mississippi Bubble (1917-1921), which started with land development and speculation in the Mississippi region. Economist John Law was key to the creation of the Mississippi Company,[2] with the Banque Royale agreement allowing the French national debt to be paid from revenues derived from opening the Mississippi Valley. Law planned for an exaggerated wealth scheme through effective marketing of Louisiana, including bringing in French prisoners (Hardy, 1966), leading to wild speculation on the company's shares in 1719. This popularity kindled a greater need for paper banknotes, for buying shares and paying out profits. This seemingly innocuous arrangement glitches with the admission by the French government that the currency printed was more than the metal coinage held by Banque Royale (Mackay, 1841; and Moen, 2001). This point was the start of the downward spiral steering the French economy to depression.

Similar events of speculative mania, bubbles and bursts include the South Sea Bubble in Britain related to joint-stock companies, the panic of 1837, U.S. state defaults in the 1840s, the panic of 1857, 1884, 1893, 1896 and the Great depression of 1929, 1987 Black Monday, 1988-92 Norwegian banking crisis, 1990 Japanese asset price bubble, 1997 Asian financial crises, 1998 Russian financial

[1] The term bubble came into official use with the passage of the "Bubble Act" in 1720 by the British Parliament following the collapse of the share price of the South Sea Company from 775 British pounds to 290.

[2] Mississippi Company was formed when Law integrated Banque Royale with the Company of the West and the Companies of the Indies.

crisis and so on. Regarding bubbles, it should be noted that "[i]f something cannot go on forever, it will stop" (Kindleberger and Aliber, 2015). It seems, however, that after every decade or so of the bubble burst, public memory fades, confidence returns, credit expands and financial speculation starts overtaking the repressed business conditions. Discussing Hyman Minsky's *Paradox of Tranquillity*, Marc Lavoie writes "…a stable growing economy is a contradiction in terms. A fast-growing free-market economy will necessarily transform itself into a speculative booming economy" (Lavoie, 2015). The basic idea is that stability is destabilizing- that growth and upswings are not perpetual but reverse after a period (Minsky, 1986).

Interestingly, the evidence from the various research studies reveals that some bubbles matter more than others, citing the role of credit as the distinguishing feature. There are pure, unleveraged "irrational exuberance bubbles" and "Credit boom bubbles". The first view propounded by (Shiller, 2000) suggests that investor enthusiasm drives the asset prices up to levels that are not supported by fundamentals, thereby giving rise to bubbles in asset prices. It usually takes two forms based on the attitudes of the participants. First are those who are persuaded by the strength of the market that the upward trend will "stay up and go up, perhaps indefinitely", that under control of some new price-enhancing circumstance, participants would get infinitely increasing returns. Then there is a small but ingenious group who perceive the speculative mood of the moment. They are confident that the upward wave will allow them to withdraw before it turns direction, for characteristics of an inevitable fall are built into it. The timing of the fall is unstipulated; however, it is not gradual or benign. When the descend sets in, both groups of participants in the speculative situation make sudden efforts at escape, triggering the ultimate reversal. When the bubble bursts, investors engage in panic selling. The panic eventually moves to other asset classes and causes a downturn.

However, the negative effects of the credit booms exceed that of the pure exuberance bubble (Martin and Ventura, 2016). In the words of the Former Chair of the Federal Reserve of the United States, Alan Greenspan, "[a]ll of us knew there was a bubble. But a bubble in and of itself doesn't give you a crisis.... It's turning out to be bubbles with leverage" (Greenspan, 2013). When the credit boom bubbles go bust, the households and businesses witness a deleveraging spree, depressed spending and growth followed by weakening of credit markets. (Mishkin, 2008; and Mishkin, 2009). In other words, recessions and depressions can be attributed to the overall level of debt rising in real value because of deflation, causing people to default on their consumer loans and mortgages. The defaults lead to a decline in Bank assets resulting from the fall in the value of their collateral, leading to a surge in bank insolvencies. It ultimately results in a reduction in lending and, thereby, a reduction in spending.

3. The Precarious Credit Bubbles

The role that credit plays in determining the economic course and the amplification mechanism for both upward movements and downturns have grown in prominence, with theoretical and empirical literature finding credit bubbles at the back of downturns. Even if the crisis does not emerge due to excessive leverage, it does exasperate the adverse outcomes following a shock. The reason to focus on debt levels is that there is a close link between the financial cycle and financial crises, which implies that it is possible to measure the growth of financial crisis risk more accurately and in real-time. However, this relation varies based on the financial regime, the monetary regime and the real economic regime (Borio and Lowe, 2002).

Several research studies often cite financial liberalization as the vital factor for increasing credit levels across the globe; the theme dominated the literature after studies established that deregulation

of the financial sector preceded the banking crisis of the 1980s and 1990s (Demirgüç-Kunt and Detragiache, 1998). Therefore, for this paper, we distinguish between the available literature into pre-liberalized ones and post liberalized ones.[3] It is pertinent to understand that much of the literature falls in the post liberalization era as is evident from the frequency of the banking and financial crisis. There have been two episodes of banking crisis between 1945 and 1970, nine between 1970 and 1980 compared to 153 episodes between 1980 and 2010 (Reinhart and Rogoff, 2008). Since 1971, the crises are becoming more frequent, with an annual four percent probability (Schularick and Taylor, 2012).

3.1 Pre-liberalized Finance

The role of credit in creating and amplifying speculative bubbles can be cited in the works of (McCulloch, 1888) highlighting how in 1832, wild speculation on the timberland in Maine was essentially based on credit and use of promissory notes. When the bubble exploded, the promissory notes were found to be worth nothing, ruining hundreds of households. In the other credit manias, the principal object of speculation extended to cotton, railroads, ships, town lots, agricultural lands, etc., but the story remained the same.[4] An undue interest in the object leads to an initial increase in demand, followed by a rise in prices, which require buyers to borrow more, facilitated by the banks with easy loans and growth in bank credit. Any revulsion of trade or economic conditions set the momentum of the ensuing crash (Gorton, 2012). The list of credit supported manias includes the panic of 1907, also known as the knickerbockers crisis after the New York-based trust company that collapsed because of the stock market crash and bank runs. The heavy borrowing by large brokerage firms for speculative investment was responsible for deepening the crisis (Moen and Tallman, 2015).

Though the majority of these crises were concentrated in the United States and Europe, we have evidence of a similar episode in China — the Shanghai rubber stock market crisis of 1910, in which the bankers and stockholders overstimulated the stock, which decreased dramatically after the U.S. government banned the consumption of rubber. In the aftermath of the crash, 53% of Shanghai's native banks were forced into bankruptcy, with an estimated loss of 19.33 million Teal (Zhaojin, 2003).

In the 1920s, renowned economist Fisher fell prey to the same mania. On October 15, 1929, the New York Times quoted Fisher's statement at a meeting of the Purchasing Agent Association. Times believed that Fisher's attitude "fell into almost unqualified optimism". The optimism, however, did not last long. With the crash of Stock markets and the ensuing depression, Fisher was forced to reflect on his decisions. He then penned down the book *Booms and Depression* which became the Holy Grail for research into business cycle fluctuations, debt cycles and economic downturns. Among the nine factors listed, over-indebtedness was the main factor (Fisher, 1932). In the subsequent paper, he discusses the 43 creeds with a major focus on debt and deflation in bringing about financial downturns (Fisher, 1933).

Similar to the above observations, authorities in 1930 pointed out that easy credit was creating a generation of deadbeats who would default at the first sign of financial stress (State of Connecticut, 1931; and Phelps, 1952). The "spirits, spending, and indebtedness were all high in 1929", writes Olney (1999) in a paper about the Great Depression. The author studies the effect of high consumer indebtedness on future consumption spending citing the collapse of consumer spending

[3] The year 1973 is set as the dividing line as per the criteria mentioned in (Williamson and Mahar, 1998).

[4] Assets associated with innovation having poorly defined fundamentals and high liquidity are most likely to become the objects of speculation (Spotton, 1997).

as the primary reason for exaggerating the otherwise minor recession into the complicated Great Depression.

3.2 Post Liberalization

Given the prominence of debt in today's world, researchers are increasingly tracking Credit-to-GDP or Credit-to-Income ratios to identify financial stresses and early warning indicators of financial downturns. These credit booms are defined as those episodes in which credit rises significantly above its long-run trend. Some researchers have adopted a "thresholds method" for identifying such credit booms and employed it to study their micro and macroeconomic characteristics in industrial and emerging economies (Mendoza and Terrones, 2008). The major variable under study is real credit per capita which is bifurcated into cyclical and trend components. This research paper provides an evidence that the boom phase of credit expansion episodes is associated with periods of economic expansion, rising equity and housing prices, real appreciation and widening external deficits with trends reversing itself in the downturn. Therefore, to study the crisis and control future financial crises, one needs to concentrate on the level of debt, be it public debt, private debt, household debt or corporate debt. It is also worth mentioning that leverage in itself does not always lead to crisis, but when a crisis unfolds, it can magnify the negative impact of the crisis on the growth trajectory of any economy. No doubt that the level of leverage is considered a crucial indicator of the financial crises and it is also evident from the mentions in essential theories and models of banking and currency crisis (Kaminsky and Reinhart, 1999; Glick et al., 2001; Eichengreen and Arteta, 2001; and Jorda et al., 2012). With specific reference to the currency crisis, the post-liberalization literature can be distinguished in tune with *the three generations of crisis models* (Mariano et al., 2000; and Chian et al., 2020). We will generalize this classification for all types of the crises.

The *first-generation models* gained prominence after the breakdown of Bretton Woods with a focus on the level of public debt and excessive fiscal deficit, and overvaluation of the exchange rate, which posed stability risks to the value of a fixed or pegged currency. The imbalances in foreign exchange reserves usually invite speculative attacks on the currency (Krugman, 1979; and Flood and Garber, 1984).

The *second-generation models* followed by the currency crisis in the European market during 1992-93, where despite the presence of sufficient international reserves, sustainable domestic credit growth and fiscal deficits, countries like UK and Spain suffered heavily. The crisis earmarked the importance of self-fulfilling speculative attacks. Given the size of the public debt, governments face a paradoxical decision to join a monetary union. Their entry in a monetary union will expose them to default risk, and maintaining monetary autonomy would lead to higher inflation. They would be prone to speculative attacks under both the scenarios (Obstfeld and Rogoff, 1986; and Eichengreen and Rose, 2003). Both first- and second-generation models revolve around public debt and fiscal deficits. The high public debt is perceived as economically destructive both on account of the budgetary costs due to high future distortion taxes and the welfare costs, as debt crowds-out capital in the savers' portfolios, decreasing future output and consumption (Ibrahim and Abubakar, 2016; Graham et al., 2014; and Blanchard and Perotti, 2002).

The strong empirical evidences have confirmed that many financial crises have transmitted through interest rate shocks and commodity price collapses in the wake of high public debt levels. In recent years, the massive proliferation of public debt in Latin American countries during the 1980s, the Russian government defaulting its debt in 1998, the case of European Union (especially the case of Greece since the mid-2000s), Iceland in 2009 and the Chinese debt crises of 2015 are strong examples of public debt excesses. In this context, a universal phenomenon surfaced for

default in these countries is that they tried to transform themselves from emerging to advanced countries. In an attempt to understand the debt defaults, researchers found that significant default episodes are often spaced years or decades apart, presenting the illusion that "this time is different" (Reinhart and Rogoff, 2008). At the same time, it is observed that the general market consensus about the ability of the government to pay will decide the future course. A negative perception or doubt about the government's ability to pay will increase the risk premium, making debt servicing expensive and generating self-fulfilling government defaults (Gros, 2014). Likewise, the delirious association between sudden capital flow and increased debt crisis risk has been studied over decades. The research findings reveal that the regularity is often true for much of the past events since 1800, where a surge in capital flows often precede external debt crisis (Kaminsky et al., 2003; and Mendoza and Terrones, 2008). Barring few exceptions, much of the literature regarding the public debt and growth association have shown a negative effect, though a consensus regarding the threshold is absent.

Deflecting from the previous viewpoints, the *third generation models* shifted focus towards the private arena (Cespedes et al., 2000; and Velasco, 2001). This strand of literature was primarily motivated by the Asian Financial Crisis of 1997. Since early 1980s, there has been an increase of crisis episodes in the private arena rather than in public or quasi-public sectors, particularly after the liberalization era characterized by low-interest rates and high growth. We saw the Japanese case, which witnessed the rise of a massive credit-fuelled commercial real estate bubble leading to a 65 percent growth of domestic bank credit, a quadruple increase in real estate lending and rise in the land prices by 245 percent between 1985 and 1989. In 1990, the bubble burst, property prices declined by 80 percent, corporate investors started to deleverage, investment shrank, savings swelled — all leading to a balance-sheet recession and an ongoing price deflation and slow growth (Koo, 2008). The 2008 financial crisis is not much different, except that American households replace the Japanese companies (Mian and Sufi, 2014; and Mandal and Kar, 2014). To justify the extraordinary governmental effort during global financial crisis, a typical severity of downturn can be attributed to the panic in funding and securitization markets (Bernanke, 2018). The problem with private debt bubbles is that it is not concentrated in one industry or region. This generation of models is based mainly on contagion, ranging from monsoonal effects to spill-over effects, and to pure contagion effect (Masson, 1998). It is one of the reasons that international debt indicators such as cross-border claims and foreign currency debt prove to be a source of increased vulnerability (Aldasoro and Borio, 2018).

In his book *Big Debt Crisis*, Ray Dalio portrays the nature of an archetypal long-term debt cycle by averaging the deflationary deleveraging cases into a 7-stage model. The goldilocks period[5] is followed by bubbles,[6] created when borrowers resort to increasing their indebtedness to make the debt service payments on their existing loans. What follows a bubble is the realization of central banks that credit growth is dangerous. This is followed by a tight monetary policy where the economy witnesses the rise in interest rates to curtail the credit growth, and thus more debt-service related problems arise. When debt service cost becomes greater than the amount borrowed to finance spending, the upward cycle reverses. The slowdown in spending and investment results in a slowdown of income growth even further, and thus asset prices decline (Dalio, 2018).

[5] The early part of the cycle, characterized by low debt burdens and healthy balance-sheets of households, corporate sector, and government. There is strong growth in debt but lower than income growth.

[6] An appreciation in asset prices, which cannot be justified by an increase in underlying fundamental/intrinsic values.

The financial instability hypothesis presented in a notable theory that discusses how the behavior of investors in a capitalist economy is linked with the endogenous speculative investment bubbles (Minsky, 1992). A booming economy is usually followed by the development of speculative euphoria and the rise of "Ponzi" financiers, whose cash flow from investments is always less than the debt servicing cost. After a certain period, the debt levels exceed what these borrowers can pay off from their incoming revenues, increasing the financial system's vulnerability. The speculative borrowing bubbles are followed by tightening credit availability by the banks as well as financial lenders and the contraction of the real economy.

The role of credit in business cycle fluctuations is often studied through analysis of the financial cycles. A seminal paper by Stiglitz and Weiss (1981) discusses the influence of credit on economic dynamics, indicating a shift in the narrative towards addressing the relationship between financial and business cycles, in line with the third-generation models. The researchers have also identified that financial cycles are more important than business cycles in the medium terms; the peaks of financial cycles often coincide with financial crises (Drehmann and Borio, 2012). The financial cycles are loosely defined in terms of credit contractions and expansions in addition to changes in consumption and investment, the risk attitude and mode of expectations. The researchers have identified two essential features of the financial cycle. Firstly, the peaks of financial cycles tend to coincide with banking crises or considerable financial stress. Secondly, the financial cycles are often much longer than the business cycle (Borio, 2014; and Claessens and Kose, 2011), whereas business cycles have traditionally been measured to last up to eight years and financial cycles last around 15 to 20 years (Filardo and Lombardi, 2018). This disparity in length means that a financial cycle can span more than one business cycle. The further indicates that a crisis that starts in the financial sector soon shifts to the real economy. It happens primarily through 'speculative- leveraged asset price bubbles'.

A dynamic economy model was constructed by Kiyotaki and Moore (1997) wherein durable assets play a role in production and collateral for loans. It leads to an association between the assets values and credit secured from collateralization of such assets; the effect of shock for instance, an increase in credit tightening or interest rate increase, will spill over to the asset market. The paper by Jordà et al. (2015) develops a bubble indicator that identifies a greater asset price increase followed by significant correction as a bubble. They corroborate that the presence of a bubble increases the credit risk by a factor of 1.5 of credit growth. While demonstrating the strong predictive power of credit expansion on the financial crisis probability some of the researchers witnessed the similar results (Reinhart and Rogoff, 2010; and Richter et al., 2021). They also place house price growth as a central characteristic of credit booms that end in crisis. In their analysis of 42 countries in the post-WW2 setting, Greenwood et al. (2020) find that though credit growth predicts financial crisis, the predictive power increases significantly with the inclusion of asset price growth. They also construct an indicator that classifies a country in the "red zone" with a high probability of financial crisis in the following three years if it lies in the top third of historical credit growth and the distribution of asset price growth. In their paper, Yener et al. (2020) develop a mathematical framework to uncover the factors that makes an economy non-resilient through a survival analysis of 16 European countries over 30-year period. They establish that the country's level of leverage has an analytical relationship with its macro fundamentals.

Since shifts in the asset prices affect the real allocation of an economy, it becomes crucial to study the circumstances under which these prices can deviate from their fundamental value. The boundary between investment and speculation is intricate and differentiating one from the

other arduous as they follow a shared principle of staking money through delaying consumption in anticipation of future gains. A distinction between the two is often based on the time frame, risk exposure and expected rate of return, type of underlying assets, source of funds etc. (Max et al., 2020). However, these variables fail to provide a clear demarcation between investment and speculation. It is often after the collapse of the bubble that the connotations change. The present scenario seems to be ripe for speculation, with investors pointing out the potential for making quick gains for a few more quarters (Tobey, 2020; and Linzdon, 2020). Interestingly the new FOMO has pushed many newbie's into the speculative world, akin to how Shiller (2000) defined the bubble as 'a psychological contagion'.

3.3 Post Covid-19 onset

Universally researchers argue that the years following the revival of the economy after the global financial crisis (GFC) were dotted with multiple speculative episodes, mainly prevalent in the traditional fields of the stock market and real estate and moving to new areas such as cryptocurrency and disruptive technology including digital payments and fintech. With the advent of the Covid-19, experts raised cautionary flags believing that these bubbles would now burst with market corrections taking place. However, that did not happen and it seems that the present shock came as a displacement rather than as a tipping point, presenting new paradigms for the existing speculation to continue and new bubbles to start.

Because of the unique challenges presented by the pandemic, the markets saw tremendous growth in the digital platform space for education, work, and investment, with every other company jumping on the uncertainty bandwagon. Apart from the usual, we also saw the Wall Street conversations moving to the possible emergence of bubbles in reserve holdings, SPACs,[7] electric cars, Agri-commodities and even Cannabis stock. The first two asset classes supported by the increased participation of novice retail investors seem to indicate a possible speculative bubble (Stevens, 2020). World Bank and Cambridge Centre for Alternative Finance (2020) have reported that the onset of Covid-19 has spurred a rise in financial innovation through digital services aimed to enable digital payments and remittances, digital lending, InsurTech, WealthTech, Digital capital rising amongst a plethora of other services. A number of these services are still outside the purview of regulators and therefore pose a risk to financial stability.

As far as the stock market and real estate sectors are concerned, the popular bubbles are gaining precedence, with both markets believed to be overheated. In the stock market, the buying spree is continuing with prices far from the fundamentals. It was evident after all major stock markets rebounded quickly after an initial downturn following the Covid-19 shock. This growth amid the weak real economic variables indicates that markets are not only speculative but has formed into a "full-fledged epic bubble" (Pratley, 2021). The current stock market seems to reflect the previous scenarios depicted; institutions like the Bank of America are warning of the dangerous optimism with the statement that "Wall Street is <2ppt shy of euphoria" (Business Insider, 2021). The gap between the stock market and the real economy has been widening. It has been noted that though the markets have often diverged from the fundamentals, this disconnect poses the risk of disruptive market corrections (Chandrasekhar and Ghosh, 2020). The housing market presents a similar indication with a rise in global house prices since 2006, fuelling concerns of a

[7] Special purpose acquisition companies (SPACs) are shell companies for raising capital through IPOs with no commercial operations. Investors hand over money without knowing when, or even what for, their capital will be used and therefore also known as blank-check companies.

bubble. The inflationary pressures on home price prevail across most countries, with average prices as benchmarked on Global House Price Index for 56 countries and territories increasing 7.3% from March 2020 to March 2021 (Knight Frank, 2020). As of now, the credit facilities and loan restructuring, suspended foreclosures with housing subsidies have mitigated the fallout from the crisis. The question is how long this support can last and the after effects of the stimulus withdrawal and end of accommodative policy. It is foolish to ignore the truth that the bubble has expanded beyond capacity, with the threat of collapse looming large.

Before the onset of the pandemic, there was common belief that the financial cycle had peaked, with the levels of debt reaching 331% of GDP to $258 trillion in the first quarter of 2020 (ET Prime, 2019). By the end of 2020, the debt levels soared to $281 trillion or 355 per cent of global GDP, with no signs of stabilization in the coming years (IIF, 2021). The ongoing financial cycle peak may thus rise above the manageable levels, indicating that the ensuing collapse will be distressing consequences. At the same time country-specific dilemma such as the growth of Chinas Zombie companies, the failure of shadow banking in India, weakening local currencies in Vietnam and Iran, dwindling fiscal positions in Timor-Leste, Kiribati, Venezuela, Brunei, and Libya are being experienced. In terms of households Switzerland, Australia and South Korea lead the pack of over indebted countries. The rising student debt in America signals that the debt drag is looming large over the next generation of workers. Moreover, extending additional credit in the already indebted economy merely may exasperate the problems and sows the seeds for deeper troubles. While the short-run implication of borrowed funds may reflect economic growth, it makes the financial system more vulnerable to crisis (Bloomberg, 2019). While presenting the overview of causes, policy responses, and lessons from three prominent international financial crises namely the Asian Financial crisis of 1997, Global Financial Crisis of 2008, and Eurozone crisis of 2010, researcher found that a factor that prevails throughout is debt, both its level and time (Buckley et al., 2020).

4. Banking Sector: The Originator or Amplifier of Crisis

The research studies conducted on the economic cycle downturns in the post liberalized era provides sufficient evidence to link the macro-economic downturns to the financial market, mainly the banking sector. For any liquidity creating bank, there are two classes of equilibria — good equilibria marked by the regular withdrawals and confidence in banks and the second is bad equilibria, where withdrawals are based on the fear about banks' ability to honour its commitments, causing a bank run bank (Diamond and Dybvig, 1983). A measure of excess credit is defined as the rate of change of aggregate bank credit relative to GDP. It is then correlated with output declines during a recession and the results reveal that the build-up of credit before the crisis is related directly to the severity of the subsequent recession. In the context of the past recessions and financial sector downturns, one of the questions that is being debated in finance and economics is the deeper causes of the crises? What are the deeper drivers for the excessive risk-taking that we have seen in the financial system? There are two different ways to look at it. The first one is "incentives" the bankers do not have enough skin in the game that drives them to take excessive bets because if things go well, they all make money, and if they go wrong, society pays the price.[8] The second view is that bankers make mistakes and are not as evil as we think. They also get caught in the same euphoria or bubble mentality. They are just convinced that like other people the housing

[8] SITG or Skin in the game is a phrase made popular by the 2017 book of the same name by Nassim Nicholas Taleb.

market was an excellent investment. The actors in the financial system are also susceptible to making mistakes driven by irrationality and extrapolating information they have, getting over-optimistic. Gertler et al. (2017) in an attempt to understand the recent financial crisis extends the conventional macroeconomic framework to include banking panics.[9] They establish a model that test the strength of banks' balance sheets in a steady-state and a recession. They conclude that in the former state, a business cycle shock will not lead to a financial crisis. However, during recessions, the weak balance sheets of the banks leave them vulnerable to bank panics, which will have negative externalities for the real economy. Another attempt to model the financial crisis includes financial intermediation and long-term loans to the standard macroeconomic models. It deliberates on the pro-cyclicity of bank leverage, that increases during boom periods leading to enlargement of their balance-sheets, but also increases the risk of funding and builds in financial fragility; thereby pushing the banks "closer to the cliff" (Paul, 2019).

A study of the micro-level data for countries revealed that the sub-prime crisis was preceded by an increase in leverage in the investment banks, with off-balance-sheet items forming a large part of the assets for commercial banks in the U.S. In contrast, investment banks were not required to disclose these items, with the leverage ratio being pro-cyclical for both categories of banks. The risks taken by the banks were of the quality of credit and not of the quality (CGFS, 2018). In a series of papers, Adrian and Shin provide evidence to the pro-cyclical nature of investment banks, which intensifies the business cycle downturns leading to systematic risks, typically when asset prices bubbles exist (Adrian and Shin, 2008; Adrian and Shin, 2009; and Adrian and Shin, 2010). It is one reason that banks with the largest exposure to subprime assets suffered the most significant decline in asset value (Kalemli-Ozcan et al., 2012). The importance of the banking sector in financial stability can also be gauged from the characterization of the financial cycle, which, in addition to credit growth rates and asset prices, also includes a set of banking sector ratios, including funding to total assets, net income to total assets, and loans to total assets. Other candidate variables include the foreign portfolio of banks, volatility of credit, interest rates, spread of risk premium, and exchange rates (Stremmel, 2015).

There is an alternative explanation for credit booms and the role of the banking sector. It is based on shifts in the supply of credit-driven by several factors, with financial innovation (such as securitization) often a core component. Charles P. Kindleberger, in his book, asserts that "in many cases, the expansion of credit resulted from the development of substitutes for what previously had been the traditional monies" (Herwadkar, 2017). Another author Galbraith places the onus on financial innovation and their ability to create debt against limited assets. In 1920, the financial innovation was creating great holding companies and issuing bonds and preferred stock; in the 1980s, it was the merger and acquisition mania based on borrowed money and junk bond issue. These innovations provided a platform for implausible securities issues, insider trading and market rigging (Galbraith, 1990). This trend also finds a mention in the book *From Asian to Global Financial Crisis* by Sheng (2009) in which he tracks all crises events starting from Japan in 1990s, 1997 financial crisis spanning a study of seven Asian countries to the 2008 global financial crisis. He points out unfettered finance reflected from loose monetary policy, lax supervision financial engineering along with cronyism, and greed as the major causes of both crises. The previous euphoric episodes lead to an excessive increase in leverage when compared to underlying means of payment. The new crises

[9] A panic or bank run is defined as a self-fulfilling rollover crisis, a situation in which creditors fail to roll over their short-term credits to banks.

are similarly preceded by complex financial innovation, risky financial instruments, tightly coupled markets (Bookstaber, 2007).

In contrast to the global financial crisis of 2008, the current downturn did not directly emerge from the vulnerabilities in the financial sector. However, the sector is not excluded from the effects of the pandemic. In fact, banks are at the front-line of the economic disruption with their operational resilience and business continuity at test. The systematic underperformance of bank stocks between March and April of 2020, relative to other publicly traded companies, highlighted the expectations that banks would perhaps not gain much returns (Demirguc-Kunt et al., 2020). By the end of 2020, S&P had taken 236 negative rating actions on banks globally, with a majority (77%) for CreditWatch and nearly a quarter for downgrades (S&P Global Ratings, 2020). There has been an acceleration of credit review and restructuring, moratoriums or payment holidays, and increased forbearance requests to sustain liquidity in the market, and at the same time, deterioration of credit quality. All this signify increased credit risk for the banking sector, which will challenge the strength of banks to limit the pro-cyclical effects of the crisis, thereby threatening the industry's recovery and reduce the availability of credit (Anatra and Darlis, 2021).

The pressure on the banking sector will not be limited to the period of the pandemic. According to a report by (S&P Global Ratings, 2021) even as the macroeconomic conditions improve, the banking sector stress will likely alleviate with banks' financial profile worsening. The governmental support has helped steady the borrowers and banks and this cannot continue forever. The withdrawal of the extraordinary support will reveal an authentic picture of underlying bank asset quality, with lag effect prevailing on banks' credit profiles. It is estimated that banks across the globe will face a credit loss of about $2.1 trillion by year-end 2021, owing to souring corporate and personal sector loans (S&P Global Ratings, 2020).

5. Conclusions

The theoretical review of crises literature is done in the light of the episodes of the boom-and-bust cycle. Though there are significant difference in the economic and financial landscape of the historical crisis events and those of the 21st century, we see similar pattern repeating. The anatomy of a bubble, factors responsible for inflating asset prices and the post bust trajectory remain comparable. All crises episodes start from the trough when the past crisis has bottomed out and optimism returned. The lending and borrowing activities increase and spending starts, as optimism gains momentum. Speculation in assets leads to prices going up to exorbitant levels. It is then those insiders who decide to exit the market. Soon the inevitable happens, with a market participant rushing out of the market, causing mass panic and thus drives down the asset prices. Before the dust of the past crisis settles, the new buying frenzy starts ignited by a technological development. A radical political initiative, or a financial invention, kick-starts the self-reinforcing cycle once more. Despite the new regulations and policy measures brought about over the past century, the cycle keeps repeating itself, often with more severe repercussions in downturns.

An important lesson from the previous crisis relates to how the financial condition of banks and non-banking corporate firms act as a key channel in shaping the direction of the financial crisis. Excessively leveraged public, private or banking sectors often drive the economy into a recession, with pro-cyclical leverage acting as an amplification mechanism through which financial shocks are propagated to the real economy. The crises model of each generation focuses in one form of the debt depending upon the pretext of their antecedent crisis. While the first- and the second-generation models concentrated on public debt and fiscal deficits as the centre of speculative attacks, the third

generation models witnesses the rise of private debt to prominence. The modern approach to study credit booms involves use of huge datasets and econometric tools to reach conclusions rather than concentrate on forming a narrative. The notable mentions include Hutchison and McDill (1999), Reinhart and Rogoff (2011) and Mian and Sufi (2010). In the post-liberalization era, research studies suggests that popular expansionary policies, accommodative monetary policy, low-interest rates and deficit spending produce a debt-financed boom in the short run — at the detriment to the future. At the same time, this growth was supported by financial innovations such as credit cards, derivatives, foreign currency mortgages, credit default swaps, mortgage-backed securities, and collateralized debt obligations. These instruments opened new avenues for gaining credit access but also shadowed the actual risks involved.

The question that looms large in contemporary economic discourse is whether we are on the verge of a colossal crash. There is strong evidence from the previous episodes for the same, and the perception of this time is different and may not play well. Like the earlier bubbles, the current reality reflects the presence of herding by short-horizon ('noise') traders, driving prices away from fundamentals during the period of unwarranted optimism (Farlow, 2003). Any indication of withdrawal or stimulus reduction is likely to depress the market, even prompting a taper tantrum, like one in 2013. The critical issue for policymakers would then be to devise a suitable exit strategy that does not trigger a downturn.

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AN EGARCH (1, 1)-M APPROACH TO TIME VARYING RISK-RETURN NEXUS IN DHAKA STOCK EXCHANGE

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Abstract: This paper investigates the relationship between time varying risk-return, volatility and leverage impact in Dhaka Stock Exchange (DSE) by using EGARCH (1, 1)-M model. The model is estimated using daily return based on DSE Broad Index (DSEX) and DSE Shariah Index (DSES). It is found that the risk-return relationship is positive but insignificant which indicates that the risk premium is absent (or very poor) in both cases of DSE. Nevertheless parameter of DSES shows better trade-off between risk return than DSEX return series. Besides, the coefficients of ARCH and GARCH for both cases are significant and volatility of both return series are persistent and explosive. The volatility clustering is more prevalent and high value of β indicates that the impact of old news is very important in DSE. It is also observed that the leverage effect (γ) is significant for DSEX but insignificant in case of DSES, because shariah compliant companies cannot invest in speculative investment, synthetic and debt securities.

Keywords: Time varying risk-return trade-off, Dhaka Stock Exchange, Volatility, Leverage effect, EGARCH (1, 1)-M

1. Introduction

Risk-return relationship is considered to be the most crucial subject matter in finance. The capital asset pricing model (CAPM) is the foundation of understanding the nexus between return and risk. This model shows that there is a positive linear relationship between systematic risk (β) and expected return (Markowitz, 1952; Sharpe, 1964; and Lintner, 1965). But the validity of this model is questionable because of some assumptions such as: β coefficient remains stable over time, market is efficient, and error term is assumed to be normally distributed (iid) and homoscedastic. In the real world, it is found that β is unstable over time and market is inefficient. Because of these reasons CAPM has lost its applicability in practice. To surmount these limitations, Engle et al. (1987)

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have developed a new way of testing the risk-return relationship under generalized autoregressive conditional heteroscedasticity in mean (GARCH-M) framework, where risk premium is conditional upon time and error term is heteroscedastic and non-linear. That is, the conditional variance is allowed to change over time as a function of the past errors, while the unconditional variance remains constant. Volatility exhibits three typical patterns in most financial time series behaviours, namely, clustering, persistence and asymmetry. In the past few decades, modelling and forecasting volatility of financial time series has become a very interesting subject of investigation to the financial economists because of its application in portfolio optimization, risk management and asset pricing (Ahmed and Suliman, 2011). Engle (1982) was the first to identify and examine the concept of conditional heteroscedasticity and developed autoregressive conditional heteroscedasticity (ARCH) model where conditional variance is allowed to change over time as a function of the past errors. A generalization of the ARCH model was proposed by Bollerslev (1986) where the model allows for the inclusion of past conditional variances in the current conditional variance equation. This generalized form of the model is parsimonious, even in its simplest form; it is capable of predicting conditional variance (Engle, 2001).

By applying GARCH-M model, French et al. (1987) investigated the effect of stock market volatility on stock return. The study found that the predictable level of volatility and expected risk premium were positively related, while there was a strong negative relationship between the unpredictable component of volatility and excess holding period returns. The time series behaviour of stock return has been analyzed by Chiang and Doong (2001) and found a significant relationship between stock return and time varying volatility under TAR-GAECH (1, 1)-M model.

Poshakwale and Murinde (2001) have examined the stock markets of Hungary and Poland using GARCH-M model and volatility appeared to be a persistent in nature, though by the GARCH-M model estimation this did not seem to be priced in both markets. In an attempt to measure conditional variance of Khartoum Stock Exchange (KSE), Ahmed and Suliman (2011) used GARCH (1, 1), GARCH-M (1, 1), EGARCH (1, 1), TGARCH (1, 1) and PGARCH (1, 1) and found that the volatility was very persistent and there was a positive relationship between volatility and expected stock return.

Risk-return trade-off has also been investigated in fourteen Pacific basin equity markets and the result revealed that the BiN-GARCH model captured the expected positive risk-return relationship in all cases (Cheng and Mohammad, 2014). Stock return volatility and nexus between risk and return have been investigated in Ghana Stock Exchange by using GARCH-M (1, 1) model (John et al., 2016). The study observed that the TGARCH-M (1, 1) model with student-t distribution was best fitted and the risk-return relationship was positive. Using TARCH-M model, Chiang and Zhang (2018) found that stock returns were positively correlated with predictable volatility in Chinese equity markets and also supported the risk-return relation in both aggregate and sectoral markets.

Morawakage et al. (2018) have investigated the equity risk premium puzzle in the stock markets of Indonesia and Sri Lanka by using threshold and exponential GARCH-M models. They observed that the impact of the conditional volatility of returns on risk premium was not significant in both markets. But impacts from negative return shocks on the equity risk premium were found in case of Sri Lanka. Kuhe et al. (2019) have conducted a study on Nigerian stock market by using GARCH (1, 1)-M, CGARCH (1, 1)-M and EGARCH (1, 1)-M models. They found a significant positive risk-return relationship in Nigerian stock market and investors in Nigerian stock market would be compensated for holding risky assets.

In a study on DSE, Basher et al. (2007) have investigated the time varying risk-and-return

relationship by using GARCH-M (1, 1) approach. It has been observed that the relationship between conditional volatility and return was highly significant. But the risk-return parameter has been found to be either negative or positive. While the negative sign of risk-return coefficient is not consistent in portfolio theory, it is theoretically possible in emerging markets as investors may not demand higher risk premium if they are better able to bear the risk at times of particular volatility. Hossain and Uddin (2011) have examined the efficiency and conditional volatility of DSE by using GARCH family models and indicated the risk-return relationship to be positive for DSI (Dhaka All Share Price Index) and DSE20 (Dhaka Stock Exchange 20) but negative for DSEG (Dhaka General Price Index).

To the best of our knowledge, there are very few works on DSE and no work has been found on DSE Shariah Index. The essence of this paper is to model conditional risk-return relationship, volatility and leverage effect on return of DSE Broad Index (DSEX) and DSE Shariah Index (DSES). This paper is expected to provide information to investors, analysts and policy makers about the nature of risk return relationship, volatility and leverage impact on return under shariah compliant index and conventional broad index.

2. Data and Methodology

The Dhaka Stock Exchange Limited introduced DSEX based on free float and S & P methodology since January, 2013. It is a benchmark index which reflects around 97% of the total equity market capitalization, whereas DSES is a subset of DSEX index. DSES includes the stocks which comply with Islamic shariah law and was established in January, 2014.

The daily closing values of two major indices, namely, DSEX and DSES of Dhaka Stock Index have been employed for the purpose of analysis in this study. Here, the study period covers for DSEX from January 27, 2013 to April 30, 2019 and DSES from January 20, 2014 to April 30, 2019 from the databank of the DSE.[1]

Here, daily market returns are calculated as the first difference in logarithm of daily closing prices of DSEX and DSES indices of successive days. That is,

$$R_{mt} = log\ p_t - log\ p_{t-1} \qquad \ldots (1)$$

where, R_{mt} refers to the market return at time t, P_t refers to the price index on day t and P_{t-1} refers to the price index on day t-1.

Increased volatility is perceived as indication of a rise in financial risk, which can adversely affect investors' assets and wealth. It is observed that when the stock market exhibits increased volatility, there is a tendency on part of the investors to lose confidence in the market and they tend to exit the market. On the other hand, investors who would continue in the market at the time of higher volatility should demand a higher risk premium for the rising risk. Here, we have also tried to examine the positive correlation hypothesis between volatility and the expected stock returns by using GARCH-M model.

This is very important to note that before applying GARCH family models, one should first examine the residuals of return series for getting evidence of presence or absence of conditional heteroscedasticity. Engle's (1982) ARCH-LM test statistic is the most widely used standard test to identify autoregressive conditional heteroscedasticity. It is calculated from an auxiliary test regression,

[1] Retrieved from http://www.dsebd.org/recent_market_information.php

and the null hypothesis is that there is no ARCH up to order q in the residuals.

After the residuals (e_t) are obtained, the next step is to regress the squared residuals on a constant and q lags as stated in the following equation:

$$e_t^2 = \alpha_0 + \alpha_1 e_{t-1}^2 + \alpha_2 e_{t-2}^2 + \ldots + \alpha_q e_{t-q}^2 + v_t \qquad \ldots (2)$$

where v_t is the white noise error term.

The ARCH-LM test statistic is defined as TR^2, i.e., the number of observations (T) multiplied by the coefficient of multiple determination (R^2) of the regression. A Lagrange Multiplier interpretation can be given to the test statistic and it is asymptotically distributed as a $\chi^2_{(q)}$ distribution.

2.1 The GARCH in Mean (GARCH-M) Model

The return of securities may vary with its varying volatility. Financial theories suggest that an increase in variance results in a higher expected return. An investor can use the GARCH-M model for modelling such type of phenomenon. Engle et al. (1987) have provided an extension of the GARCH model, where the conditional mean is an explicit function of the conditional variance. Such a model is known as the GARCH in Mean (GARCH-M) model. The stock return can be represented by GARCH (p, q)-M model as follows:

Mean Equation:

$$r_t = \mu + \delta\sigma_t + \varepsilon_t; \quad \varepsilon_t \sim N(0, \sigma^2) \qquad \ldots (3)$$

Variance Equation:

$$\sigma_\tau^2 = \omega + \sum_{\iota=1}^{\theta} \alpha_\iota \varepsilon_{\tau-\iota}^2 + \sum_{\varphi=1}^{\pi} \beta_\varphi \sigma_{\tau-\varphi}^2 \qquad \ldots (4)$$

where, rt is the stock return at time t, μ is the mean of rt conditional on past information, the inequality restrictions $\omega > 0$, $\alpha_i \geq 0$, and $\beta_j \geq 0$ are imposed to ensure that the conditional variance (σ_t^2) is positive. The parameter δ is called the risk premium parameter. The presence of σt in the mean equation provides a way to directly study the explicit trade-off between risk and expected return. The significant influence of volatility on stock returns is captured by the coefficient of σ_t, that is, δ. The coefficient δ represents the index of relative risk aversion (i.e., time-varying risk premium). A positive and statistically significant coefficient, δ, represents that the trader's trading stock is compensated by higher returns for carrying a higher degree of risk for the same period. If the coefficient, δ, is negative and statistically significant, it indicates that the investors are penalized for bearing risk as pointed out by Basher et al. (2007).

A common and interesting phenomenon of the stock price is that the bad news has a more prominent impact on stock price volatility than the good news of the same magnitude. There exists an inverse relationship between the current return and future volatility. The tendency of volatility to decline when return rises and to rise when return falls is often called leverage effect by Enders (2004). The basic limitation of symmetric GARCH models is that they cannot capture the leverage effect because the conditional variance depends on the magnitude of lagged residuals and not on their signs. Another important limitation is that the basic GARCH is restricted by non-negativity constraints. To overcome the limitations of the basic GARCH model, exponential GARCH (EGARCH) model has been used in this study.

2.2 Exponential GARCH (EGARCH) Model

EGARCH model was first presented by Nelson (1991). The main purpose of EGARCH model is

to describe the asymmetrical response of the stock market under the positive and negative shocks. In the EGARCH model, the natural logarithm of the conditional variance is allowed to vary over time as a function of the lagged error terms and its own lag rather than the lag square errors. Here, conditional variance depends on both the size and the sign of error terms (ε_t). EGARCH (1, 1) specification can be written as:

$$ln\sigma_1^2 = \omega + \beta_1 ln\sigma_{t-1}^2 + \alpha_1 \left[\left| \frac{\varepsilon_{t-1}}{\sigma_{t-1}} \right| - \sqrt{\frac{2}{\pi}} \right] + \gamma \frac{\varepsilon_{t-1}}{\sigma_{t-1}} \quad \ldots (5)$$

The logarithmic specification of the EGARCH model ensures that the conditional variance is always positive without imposing non-negativity constraints. For an EGARCH (1, 1) model the log variance will thus be a constant, ω, plus three terms. The term β_1 captures the effect of prior variance terms on the current conditional variance and the γ term captures the sign of lagged error terms. Leverage impact indicates that negative shocks (bad news) have a greater impact on conditional variance than the equal magnitude of positive shocks (good news). When $\gamma \neq 0$, the effects of the information are asymmetric. The presence of leverage effect can be tested by the hypothesis of $\gamma<0$; that is, when $\gamma<0$, there is a significant leverage effect. If there is a negative relation between returns and volatility, γ must be negative. The absolute value of standardized error terms, $\varepsilon_{t-1}/\sigma_{t-1}$, has an expected value $(2/\pi)1/2$ assuming that the standardized errors follow a standard normal distribution, i.e., N(0,1). If the absolute standardized errors are greater (less) than the expected value, the conditional variance will rise (fall). Hence, the third term in the model captures the magnitude of the lagged error terms. If we compare the above equation with the basic GARCH model, we can see that there are no constraints for the parameters α, β and ω. This is one of the biggest advantages of EGARCH model as compared to the basic GARCH model.

3. Results and Discussions

In order to check the stationarity pattern of DSEX and DSES return series, Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests are applied (Dickey and Fuller, 1979; Phillips and Perron, 1988). The test statistic values of ADF test for DSEX and DSES are -34.331(0.000) and -57.634(0.000), respectively. Besides, the test statistic values of PP test for DSEX and DSES are -34.974(0.000) and -57.655(0.000), respectively. Both ADF and PP tests reject the null hypothesis at 1% level of significance. So, the time series data are stationary and fit for standard econometric analysis without differencing.

Before applying GARCH family models, it is important to first examine the residuals of both return series for checking evidence of the presence or absence of conditional heteroscedasticity. The values of TR^2 and its probability for the residuals of both DSEX and DSES series are 115.730 (0.000) and 20.375 (0.000), respectively. It is observed that the values of TR^2 are very high and their probabilities are zero in all cases. So, the values of TR^2 are significant at 1% level of significance. Therefore, the null hypothesis of no conditional heteroscedasticity is rejected and the result indicates a strong evidence of the presence of ARCH effects in the residuals series under all cases. Due to the presence of ARCH effect in residuals series, now we can proceed for the modeling of index return volatility by using GARCH family models.

3.1 Estimated Result of EGARCH-M (1, 1) Model and Discussion

The EGARCH-M model is estimated by allowing the mean equation of the return series to depend on the function of conditional standard deviation. The results of EGARCH-M model are presented in Table 1.

Table 1: Estimated Results of the EGARCH-M (1, 1) Model

Co-efficients	DSEX	DSES
δ	0.034373	0.171452
	(0.6085)	(0.0749)
ω	-0.514559	-0.628425
	(0.0000)	(0.0000)
α	0.288873	0.238266
	(0.0000)	(0.0000)
β	0.575188	0.962904
	(0.0000)	(0.0000)
γ	0.043581	-0.021980
	(0.0013)	(0.0947)

Note: p values are in parentheses

Table 1 presents the value of the coefficient of conditional standard deviation (δ) in the mean equations as well as constant (ω), ARCH parameter (α), GARCH parameter (β) and leverage effect (γ) in variance equation along with their p-values for both DSEX and DSES return series. The estimated coefficients of standard deviation in the mean equation are positive (0.034373 for DSEX and 0.171452 for DSES) but insignificant for both DSEX and DSES return series. The presence of δ in the mean equation shows a trade-off between time-varying risk and expected return, and this indicates that the mean return not only depends on the past sequence of return but also depends on the past conditional variance of residuals (time-varying risk). Though the positive sign of parameters (δ) are consistent with asset pricing theory (positive risk return relationship), the statistical insignificance of the parameters postulate that risk premium is absent for both DSEX and DSES return series. This finding indicates that the investors as a whole in Bangladesh are not well aware of the risk and are not claiming logical excess return for bearing additional risk. This finding is supported by Glosten et al. (1993), who claim that, in some cases of emerging market, investors attitudes are peculiar and they may not demand higher risk premium if they are able to carry risk at the time of particular volatility. Though both the return series are insignificant but a keen observation regarding coefficients of SD(δ) and their p values draw our attention to make comment on the risk-return trade-off. The coefficient of SD(δ) of DSES return series is about five times higher than the DSEX return series and p-value is very close to the significance level (0.0749). So, from the point of view of the risk return trade-off, DSES return series perform better than DSEX return series.

On the other hand, the ARCH (α) and GARCH (β) coefficients of both return series are significant at 1% level of significance. The sum of α and β is very high and more than 1, which indicates that the volatility of both return series are persistent and explosive. At the same time, the high value of α indicates volatility clustering (which implies that the large changes in return tend to be followed by large changes, and small changes tend to be followed by small changes) is more prevalent; and high value of β indicates that the impact of old news is very important in Bangladesh. It is also observed that the leverage effect (γ) is significant at 1% for DSEX and insignificant for DSES return series. The Shariah Law does not permit speculative investment and also prohibits investment in synthetic and debt securities, whereas the conventional companies like Power-grid, Mithunknit, etc. can do so. Due to the nature of investment and asset composition, DSEX return series is significantly levered than DSES return series, that is, negative shocks or bad news cause more volatility for DSEX compared to DSES.

3.2 Diagnostic Checking for EGARCH-M (1, 1) Model

To examine the validity of the EGARCH-M (1, 1) model we conduct ARCH-LM test and autocorrelation test on the residuals of this model. From Table 2, it is found that the null hypothesis (H_0: There is no ARCH effect) cannot be rejected at any level of significance. Therefore, ARCH-LM test indicates that there are no additional ARCH effects and the model EGARCH-M (1, 1) is well fitted and well specified.

Table 2: Estimated Results of ARCH-LM Test on Residuals of EGARCH-M (1, 1) Model

Test statistic	DSEX series	DSES series
Obs R2 (TR2)	1.368567	0.003973
	(0.2421)	(0.9497)

Note: p values are in parentheses

4. Conclusions

In this study, we have explored three key issues, namely, time-varying risk and return trade-off, volatility and leverage effect for DSE using EGARCH (1, 1)-M model. It is found that the positive but insignificant risk-return relationship is existed in both DSEX and DSES return series. Though the positive linear relationship between risk and return is consistent with asset pricing theory, insignificance of parameter indicates that the investors are not compensated for bearing risk in Bangladesh. It is also found that the risk premium parameter of DSES is five times higher and very close to the significance level (0.0749). So, it indicates better trade-off between risk and return than the DSEX return series. Besides, the model indicates the presence of volatility clustering; i.e., a large change in return series follows a large change, and small change in return series follows a small change. The GARCH parameter indicates that the impact of old news is very much important in DSE. Leverage impact (γ) is significant for DSEX and insignificant for DSES. It happens because of their asset composition and investment nature. Shariah compliant firms cannot invest in speculative motive as well as synthetic and debt securities. The outcome of this study would increase understanding and awareness of the investors, dealers, brokers and regulators about risk return trade-off and leverage impact of news. However, this study is confined to test index return but failed to cover the returns of individual stocks. So, further research can be conducted to examine risk-return nexus between individual and sectoral stocks.

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ACHIEVING THE GREEN DEAL THROUGH THE EU'S ECONOMIC RECOVERY PLAN AND THE COMMON AGRICULTURAL POLICY: WHAT DOES IT MEAN FOR THE GLOBAL SOUTH?

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Abstract: The new European Commission, when it took office at the end of 2019, immediately presented a plan. Ms. Ursula von der Leyen and Mr. Frans Timmermans, as President and Vice-President of the Commission, respectively, presented the Green Deal to make the European Union (EU) CO_2 neutral by 2050. It is an ambitious plan that—as reported in *Financial Times* on 27 February, 2020—would determine their five years in office, and the transition to "carbon neutrality as leitmotif of Brussels' policy making". However, then came COVID-19 and its effects on the European economy surpassed the effects of the 2008 financial crisis. So, there had to be a Recovery Plan. In the meantime, the new Common Agricultural Policy (CAP) of the EU was accepted in the European Parliament. It is about the distribution of agricultural subsidies during 2023-2027, which will be based on a number of EU policies and criteria. This paper is about the relation between the CAP and the other EU policies. Can we achieve the Green Deal through the CAP and the European Union's Recovery Plan? What do these new programmes mean for the Global South?

Keywords: Green Deal, Economic recovery plan, Common agricultural policy, Global south, European Union

Introduction

This article reviews the possibilities to achieve the Green Deal of the European Union (EU) through the Common Agricultural Policy (CAP) and the EU's Economic Recovery Plan (ERP). It formulates recommendations to benefit from these EU initiatives, while pointing that these new policies also

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contribute to the legitimacy of the EU project.

The Green Deal and the EU's Economic Recovery Plan are signature projects of the new European Commission, which took office at the end of 2019. Both projects concern almost EUR 1000 billion, but they are very different from each other as will be argued. Ms. von der Leyen, the new President of the Commission, made the Green Deal her calling card just as President Xi immediately launched his New Silk Road plan after becoming president in 2013 (Van Dijk, 2020).

Mr. Timmermans, as vice-president of the European Commission, is in charge of the implementation of the Green Deal (EU, 2021a). In July 2021, the European Commission presented the elaboration of the Green Deal.[1] This elaboration shows how each member state must ensure that targets are met. Earlier, strict rules were applied to meet the fiscal targets, especially to combat the 2008 financial crisis (Dutta and Leen, 2012). However, this time the ERP came about because the economic consequences of the COVID-19 crisis turned out to be more serious than those of the financial crisis of 2008.

Understanding EU policies

Davies (1997) gives a good overview of the history of Europe, and its efforts to unite. Kissinger (1964) analyzes an earlier efforts to unite Europe after the French revolution and the aftermath of the Napoleonic wars. A Union was there in the minds of the Europeans in the historical times. However, after a rigorous and consistent efforts in the more recent decades, Europe got a formal Union. An agreement in the European Parliament was reached in 2021 on the new Common Agricultural Policy of the EU. We will argue that these different plans and policies are closely linked. Trade and agriculture are typically EU level policies, while health and foreign affairs are still policies left to the member states.

Another way of looking at these new policies, which challenge the old distribution of responsibilities between Brussels and the member states, is given by Van Middelaar (2019). He analyzes most EU policies as a reaction to crises: "Europe is improvising its way through politics of events…. Forced into action by a tidal wave of emergencies, Europe has had to reinvent itself. It has had to cast off its legal straitjacket and to confront hard issues of power, territorial borders and public authority." He calls this the institutional flexibility of the EU to deal in a convincing way with crises, such as the refugee crisis, the COVID-19 crisis, the financial crisis and now the climate crisis.

The Differences between the Green Deal, the Economic Recovery Plan and the CAP

The aim of the EU's ERP is to get the economies of the member states back on track, while achieving necessary reforms. The Green Deal has a more limited and concrete goal, namely, to halve (-55%) greenhouse gas emissions (including CO_2) by 2030. And, by 2050, the EU must be climate neutral, i.e. it must emit less CO_2 than it absorbs or stores.

The approach of these two projects is different because the ERP mainly spends large amounts of money in a short period of time (EU, 2021b). That money is taken from the capital market, with the EU guaranteeing repayment. Spending is carried out on the basis of submitted plans, which must meet a number of conditions and implementing reforms suggested by Brussels. The Green Deal is a series of policy initiatives in which Brussels and the Member States spend money to get governments, businesses and citizens in the efforts of reducing greenhouse gas emissions.

The ERP wants to spend 850 billion euros in 5 years, partly as a subsidy and partly as loans. As

[1] NRC Handelsblad (Dutch newspaper), 30-6-2021: E4.

said, the Green Deal has a horizon of 10 years to achieve 55% reduction of greenhouse gas emissions and 30 years to achieve climate neutrality. Mrs. von der Leyen talks about spending 1000 billion euros by the EU in ten years and another 100 billion by member states, plus what businesses and households have to spend to achieve the goal. These expenditures vary from isolating the house to buying an electric car.

The CAP covers the distribution of subsidies in the period from 2023 to 2027 in the agricultural sector. The main difference is that the Green Deal's policy initiatives concern different sectors and the impact on greenhouse gas emissions is therefore the total of what is being achieved in sectors such as industry, agriculture, transport, etc. To achieve the goals of the Green Deal, the ERP, like the CAP and new policies regarding the permitted emissions of vehicles, have conditions relating to the environment and the desired energy transition. They should contribute to the realization of the Green Deal. 37% of the projects submitted for the ERP must be climate-related and 20% must help with digitization.

The CAP recently approved by the European Parliament, after 3 years of negotiations, is described as an EU agreement of more sustainable agriculture.[2] It is about the distribution of agricultural subsidies between 2023 and 2027. These subsidies must achieve fairer, greener, more animal-friendly and more flexible agriculture. The CAP is about modernizing agriculture through innovation.

How Do the EU Programmes Relate to Each Other?

How do the Green Deal, the ERP and the CAP relate to each other? To understand this, let us first take a look at some more details about the Green Deal, the ERP and the CAP.

Frans Timmermans, in charge of green policies in the EU, commented: "The Green plan stands like a house but can still collapse".[3] He explains that the question is whether one is willing to go down a different path instead of continuing in the same way? The plan requires a complex transition for businesses and society. "It means that we have to use raw materials more sparingly through the circular economy".

The result of the discussion at the European summit at the end of 2019 about the size of the EU budget (1% or more of the EU GDP) meant that there was less money available for the Green Deal than the new European Commission had wished. So the budget had to be adjusted and that adjustment has come at the expense of money for research and migration. Ms. von der Leyen then announced that a total of 1 trillion euros would have to be spent to achieve carbon neutrality by 2050.[4]

The European Commission has prepared a Climate Plan for 2021-2030, which contains proposals for increasing the production of renewable energy, for the continuation of the European emissions trading system and proposals on how we should deal with our waste in a different way.[5] The European Commission wants to use all its financial instruments to realize the Green Deal. In addition to bonds, mention is made of the use of subsidies for sustainable innovation and the adaptation of state aid measures (rules for state aid). The starting point is that climate policy must seep into everything the EU does. The plan includes 50 measures, the most important of which are

[2] NRC Handelsblad (Dutch newspaper), 26-6-2021: 10.

[3] Financiële Dagblad (digital news portal, 19-4-2020).

[4] Financial Times, 16-1-2020: 4.

[5] Reduce, reuse and recycle and if possible regain the energy that is in it, whereby the idea is that 'Integrated waste management can boost the circular economy.

a carbon border tax to prevent unfair competition and an industrial policy to achieve zero carbon emissions.[6]

The financial implications of the Green Deal are enormous and must also be borne by other parties. The EU wants to spend 25% of the EU budget on green issues. Member states still have to raise co-financing and the EU guarantees part of the necessary private sector loans. The plan is to achieve a multiplication of the funds by borrowing on the financial markets. Households will also spend more due to the necessary investments for insulation or alternative energy sources.

The CAP and the Global South

The old CAP has a history of 62 years. Originally it was all about keeping stocks of agricultural products and then, after 2000, the policy moved to price incentives and quantity restrictions. Some additional incentives were available for farmers that protect the Nature and improve biodiversity. Although a quarter of the more than 100 billion euros of subsidies between 2014 and 2020 were meant to mitigate climate change, greenhouse gas emissions have not diminished since 2014.[7] In 7 years, 387 billion euros, i.e. about one-third of the EU's total budget, were spent for agriculture in the EU.

The focus in the current CAP is on satisfying the EU criteria concerning climate change, sustainable agriculture and economic development (see Box 1). Annually an amount of 65 billion euros is spent on the CAP, of which 25% should serve climate goals.[8] CAP expenditures are part of the regular budget of the EU. However, the CAP also requires submitting projects satisfying EU criteria to bring them in line with the objectives of the Green Deal.

Box 1: Criteria in EU Plans and Policies to Modernize Agriculture

Sustainable agriculture: in the environmental and in the economic sense of the word
The activities should promote economic growth and be accompanied by reforms
Nature friendly agriculture
Move towards organic or biological agriculture
Promote bio diversity
Make more space available for animals and allow them to stay in the fields for a longer period
Change your crops more often (rotation)
Reduce the use of pesticides and insecticides
Contribute to the energy transition & to digitization
Link up with the objectives of the Green Deal

The CAP wants the subsidies to go mainly to smaller sustainable farms. In addition, 3% of the land must be available for biodiversity and a quarter of the money must be invested in sustainable agriculture (the Netherlands wanted 30%). Other instruments are market regulation, providing a premium per hectare not cultivated, decisions to intervene in markets and different financial incentives.

The new policies will have consequences for countries in the Global South. Trade policies have been changing all the time, but now climate change introduces possibilities to protect the

[6] Other measures mentioned are: a clean steel plan for the industry, a farm to fork strategy for agriculture (Tengilimoğlu, 2021), vehicle emission standards, a network of charging stations, cutting aviation emission rights and the maritime sector must start paying for CO_2 emissions

[7] NRC Handelsblad (Dutch newspaper), 22-6-2021: 1.

[8] This used to be 20% during 2019-2020.

EU market, using the criteria mentioned Box 1. That was not anticipated in the negotiations for further liberalization of trade in the framework of the World Trade Organization. For the so-called Millennium Round and for the previous Round, see Van Dijk and Sideri (1996). The Millennium or Doha Round started at the turn of this century but has not concluded. The result is that countries go for bi- or multilateral deals such as further integration of the EU and agreements between the EU and, for example, India.

Nielsen et al. (1990) tried to determine which opportunities the EU offers to developing countries. During almost thirty years and many policy initiatives later (1990-2021), Matthews (2018) notes the following for developing countries: "Simulations show that imports are likely to increase, and exports decrease, relative to a continuation of the current CAP legislation, but the changes are expected to be small in magnitude. These changes may open some new market access opportunities for developing countries, particularly those that export under preferential access arrangements."

These are important objectives, in particular, because a new report by the European Court of Auditors claims that previous efforts of greening agriculture in the EU are failing.[9] According to the report the old CAP sometimes even contributed to increased CO_2 emissions and 'climate unfriendly practices'. As a result, the emissions have not declined and remain at 10 percent of the total Greenhouse emissions in the EU by the agricultural sector, despite subsidies of ten billions of euros to limit these emissions. The dairy sector is responsible for 50% of these emissions. The new CAP wants to influence practices like land use, how much land should lie fallow, and which rotations are necessary. The discussions about the CAP concerned:

1. The speed at which it would be made an environmental policy instrument as well;
2. The green criteria that would be introduced;
3. Incentives that could be provided to make farmers more nature-friendly.

A lot of critique was formulated during the discussions in the European Parliament, which had to sanction it after two years of negotiations between the different stakeholders:

1. The old CAP was too expensive and did not have the positive effects on nature (CO_2 emissions, nitrogen emissions, nature-friendly, etc.) that was expected;
2. It benefited in particular large-scale mechanized agriculture;
3. The CAP had a negative effect on bio-diversity;
4. The way the new CAP is going to work is not very clear and needs to be explained through strategic plans to be prepared by the member countries. Like in the case of the Economic Recovery Plan, these strategic plans play a role in the allocation of the subsidies.

The Green Parties in the European Parliament wanted to stop or change it:[10]

1. These policies and criteria are not enough to deal with the climate crisis;
2. Still too much attention is paid to large-scale agriculture and intensive dairy;
3. The CAP stimulates the use of pesticides and fertilizers, which limit the biodiversity in the EU and destroy the soil;
4. The idea to use eco-schemes, instead of paying farmers per hectare, has not been taken up;
5. Only a small part of the budget for CAP is going to sustainable agriculture.

[9] NRC Handelsblad (Dutch newspaper), 22-6-21: 1.

[10] Bas Eickhout in a letter to members of the Green party in the Netherlands, 30-6-2021.

The rules and criteria are too vague and allow farmers 'greenwashing', according to the World Nature Fund (WNF). Greta Thunberg used the social media to influence the debate. She used a hashtag '#withdrawthecap' to reach her supporters. Newspapers suggest that Timmermans used the climate activists to countervail the points of view of the farmers.[11] He formulates his point of view as: "without radical changes in the CAP the achievement of the Green Deal is not possible".[12] Other solutions mentioned in the literature are:

1. Limiting the consumption of meat
2. Reduce the use of manure
3. Reduce the number of animals raised in the EU
4. Stimulate organic agriculture and husbandry
5. Formulate clear climatological objectives
6. Determine prices for agricultural emissions, like the carbon transfer market for industrial activities (Zhang et al., 2018)

The European Union's Economic Recovery Plan

The ERP and the financing with EU-guaranteed bonds was accepted at the end of 2019. Under high pressure, everything becomes liquid. Suddenly, there is no longer any talk of budgetary standards and there is support for the European Central Bank's buy-back program of bonds. There are no longer any rules on the level of national debt, but an ERP of originally EUR 750 billion has been put together (of which EUR 338 billion for grants and EUR 399 billion for loans), partly financed by bonds guaranteed by the EU. A few years ago, this was not acceptable for the Netherlands and Germany.

The European Union's ERP consists partly of grants and partly of loans. However, conditions are set for this, such that they must promote economic growth, be accompanied with reforms (for which the Commission has made proposals) and contribute to the energy transition. In addition, the minimum condition for the environment is "do no harm". The projects must not damage the climate ambitions, so a coal-fired power station is excluded. These strict rules for the ERP have been partly imposed by the Netherlands. The plans had to be submitted by the member states on 30-4-2021, but the Netherlands did not satisfy that requirement because of a political crisis.[13] The cabinet may have had problems with the reforms proposed by Brussels: tackling tax avoidance, phasing out mortgage deductions, more attention to healthcare and the position of self-employed people.[14] The argument used is that the government is waiting for a new government to take over after the elections in 2021.

Given that the EU money for the ERP must be spent before 2026, the Netherlands has one year less for implementation if it does not participate in a second round until next year. All other countries did meet the deadline and the EU had two months to review the plans and then member states had another month to look at them critically. The plans all have their own emphasis. Germany wants a network of electric cars chargers; Greece wants to connect the electricity grid on the islands; Italy wants high-speed trains; and Romania wanted motorways and gas-fired power stations but was told that the money is not intended to be made available for that purpose. Other topics submitted

[11] NRC Handelsblad (Dutch newspaper), 28-5-2021: 14.
[12] NRC Handelsblad (Dutch newspaper), 28-5-2021: 14.
[13] Binnenlandse bestuur week 15, 2021: 5.
[14] Financiële Dagblad, 5-5-2021: 29.

concern the production of hydrogen, the construction of 5G networks and the use of artificial intelligence.

Italy is probably the fund's main client. It is entitled to EUR 69 billion in grants and 123 billion in loans. The new Prime Minister Draghi immediately hired the consultancy McKinsey to ensure that the proposals would be acceptable to the EU.[15] Spain also expects a lot from the fund. It is asking for a subsidy of EUR 140 billion, but has decided not to borrow for the time being. It can still think about that until August 2023.

Realizing the Green Deal through the Economic Recovery Plan and the CAP

The ERP offers the opportunity to realize parts of the Green Deal. In the first place, the member states, through the requirements that are made, understand that the European Commission is serious about reducing CO_2 emissions. Criteria like 37% climate-related plans also help and the plans should not harm the environment. Besides projects, reforms are required, which may concern the climate policies of the member states. However, the efforts made by the ERP and CAP are not enough to meet the objectives of the Green Deal and it could be difficult for the EU to mobilize the necessary funds for the rest of the Green Deal plans in addition to all the money borrowed from capital markets for the ERP. A serious effort will still be needed to achieve CO_2 neutrality by 2050, even after this Commission has completed its term in 2024.

Challenges for the European Union

The EU has a number of fundamental problems. Too much bureaucracy, too far away from the people, too complicated and absence of vision for the future are some examples. A democratic deficit is also mentioned, although the European Parliament has already gained more power. There are too many rules and there was no new story until recently. With the recently launched Green Deal, the new CAP and the ERP for the negative effects of the COVID-19 crisis, the EU has shown its new power and has a story to tell that the EU is important for its inhabitants and the world.

The Green Deal and the Corona Economic Recovery Plan are not just there to prevent the disintegration of the northern and southern states, the old and the new, the countries with the euro and the countries without. European countries are tackling climate change together with a common energy policy, aimed at achieving carbon neutrality.

There are countries that do not want to go for borrowing and, for example, Poland thinks that the reforms such as reversing the encroachment on the judiciary are not relevant.[16] A question remains how monitoring of all these programmes will take place and whether the EU is able to prevent the misuse of funds. Furthermore, some member states believe that the process for starting the ERP is proceeding too slowly and that not enough money has been allocated, compared to the United States. They forget that the member states themselves have also spent substantial amounts of money on the recovery of their economies.

Conclusions

We conclude that Green Deal, the CAP and the Economic Recovery Programme reinforce each other and put the EU back on the map. The EU is now coming up with a clear story. Not only did it claim a role in combating the COVID-19 crisis through the joint procurement of vaccines, it also ensures that the adverse economic consequences are limited and, moreover, that the EU may be

[15] De Groene Amsterdammer, 11-3-2021: 7.

[16] Financial Times, 12-4-2021: 2.

the first climate neutral continent by 2050, with a viable agricultural sector. These activities deserve support from the member countries. Countries in the Global South may get new opportunities to export their products to the EU, if they understand the new policies and take the criteria applied into account. These plans certainly give the EU a new face.

The policy initiatives discussed help to define the European identity (Fukuyama, 2018), which is a problem given the fact that some of the members have only recently become nation states. Others emphasize the importance of what can be called 'the soul of Europe' (Van der Wal, 2018). They point to its unique history and the shared values of the European civilization. Van der Wal points to the creative tension between the ideals of the Enlightenment (more rationality) in the 18th century and the ensuing wave of Romanticism (defined as a movement in the arts and literature that originated in the late 18th century, emphasizing inspiration, subjectivity, and the primacy of the individual).

The EU is playing a new role, which could make citizens and young people more enthusiastic about the Union, which is coming up with a clear story that it has a role to play in this crisis and the world. Member states must be prepared to support these plans. There is no other choice if Europe is to remain a match for China's plans with the world. The new German government dares to use the word creating a European Federation in its constituting policy document, a term that the EU could not use as long as the UK was a member.

We conclude that the changes introduced through these different plans and programs may open new market opportunities for countries from the Global South, particularly those that export under preferential access arrangements. The EU is good in setting standards. Countries dealing with the EU have to know the new standards and the criteria applied to fight the consequences of climate change and help the transition to less polluting forms of energy.

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MULTIDIMENSIONAL INEQUITIES IN ACCESS TO WATER SUPPLY: EMPIRICAL EVIDENCE FROM URBAN HOUSEHOLDS OF CUDDALORE DISTRICT, TAMIL NADU

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Abstract: Existing literature on urban water focused on inequity in water access at macro level with the perspective of policy reinforcements. The present study analyses the multidimensional inequities in access to water supply at micro level in Cuddalore district of Tamil Nadu state in India. This study confirms the existence of multidimensional inequity in access to water supply by area, sources of water supply, income, and ownership of house. Of this, household income has largely led to inequality followed by sources, area and house ownership. However, all the dimensions of inequity are interrelated. Suggested measures to ensure equity in access to water are: (i) authorities need to review the existing procedure of water supply connection and infrastructure, (ii) appropriate regulatory mechanisms should be mandatory to manage market based water supply and ground water, and (iii) the slums require special attention to increase the number of public tap and ground water sources and maintenance service.

Keywords: Multidimensional inequities, Access to water, Urban areas, Tamil Nadu, India

1. Introduction

Access to safe drinking water is one of the fundamental rights under Article 21 of the Constitution of India. But, equity in access needs secure and uninterrupted water supply through governance and policy initiatives (Ramachandraiah, 2001). Adequate access to water ensures better quality of life and well-being of the citizens. Sustainable water supply is mandatory for the urban society (Mehta and Mehta, 2013). But, households in the cities, corporations and municipalities are consuming water that falls short of the norms specified by Bureau of Indian Standards (BIS) in terms of quantity and quality (Shah, 2016). Inadequate supply of water by the local urban bodies induces people to depend on multiple sources. Thus, the urban households are compelled to share water sources with neighbours, or to fetch/transport water from other places to their houses (Bajpai and Bhandari, 2001).

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Excessive ground water exploitation, absence of rainwater harvesting, urban expansion and their impact on environment are cited as the major reasons for the supply side issues (Srinivasan et al., 2013). Further, lack of proper operations, lack of regular maintenance and failure of proper resource management affected the water quality which, in turn, often produced waterborne health issues, and reduced the ground water level (Puttsawamaiah, 2005). All this has forced a section of households to spend more time and money for better water. Institutional reforms and greater investment on infrastructure are often given as suggestions to solve the issues (Thompson et al., 2000; Mekenzie and Ray, 2005; Mekenzie and Ray, 2009; Israel, 2007; Anselin et al., 2008; Das and Reshmi, 2018).

Generally, aforesaid issues have been cited as prime reasons for inequality in distribution and access. In India, more than 50 per cent of a town's population live in slums. In Mumbai, 54 per cent of urbanites are living in slums and able to access to only 5 per cent of the total water supply (Narain, 2012). Mehta and Mehta (2011) studied status of water access in slums in Gujarat and Maharashtra and brought out interesting comparisons. In Gujarat, slums including illegal settlements, which are located within the water supply network, have been allowed to get water services irrespective of their nature of settlements. But, in Mumbai, nature of the settlement is vital for water connection and this created inequity in water access in the city. The study suggested that reduction in connection deposit and simplification of application process for new water supply connection would help the authority to reduce inequity. Studies conducted in other developing nations also highlighted the association between cost of new connection (including all fees) and inequity in access (Kayaga and Franceys, 2007; and Basani et al., 2008). A study on growing inequality in municipality water allocation in India confirms that peripheries of cities and slums are unable to avail formal water supply (Kumar and Saleth, 2018). Slum households mostly could not access to formal water supply due to their status of illegal settlements. Shaban (2008) studied association between poverty and water consumption patterns in households of some major cities and found that water access differs among the socio-economic groups and areas.

NIAU (2015) emphasized better distribution of urban water supply and improved sanitation in Indian cities. For water access, 8 per cent of urban households travel more than 100 meters from their residence. The study highlighted the problems of inconsistent, unsustainable and inequitable water supply in urban areas. Institutional strategising and effective water supply governance are suggested to reduce inequity. With the help of the Census 2011 data, IIHS (2014) highlighted the multifaceted challenges of urban water supply and sanitation in India. In India, more than 50 per cent of the urban households accessed much inadequate quantity of water and they were found highly reliant on multiple sources with shared facilities. But, the deficit in access is significantly high as far as the urban poor are concerned. This calls for substantial improvements in existing policies.

Pal et al. (2015) analysed distribution of basic amenities in India using the NSSO data of 2008-09 and 2012. The study confirmed the prevalence of inadequate distribution of basic amenities including water among the poor households. It found a positive relationship between socio-economic status and access to basic amenities, and thus suggested to enhance the access. Malakar et al. (2018) quantified the inequality in water supply in urban India. Their study confirmed the inequity by applying the methodologies such as Gini co-efficient and Theil indices on various Government of India data including the Census 2001 data. Infrastructure paucity, resource scarcity and policy inefficiency are the major underlying reasons for such inequality. Subbaraman et al., (2015) measured deficiencies of water service delivery, multidimensional water poverty and adverse impact of water poverty on slum households of Mumbai. Failure in adequate water service delivery made wide inequity in quantity among urban households.

Existing literature confirms that there is inequity in water access between slums and non-slums in urban areas in India. Broadly, non-slum areas including urban peripheries are better-off in water access than slum areas. Thus, it is evident that socio-economic backgrounds of city dwellers are vital to influence their water access.

However, micro-level empirical studies on inequity in water access with special reference to Tamil Nadu state in India are limited. Application of multidimensional approach is useful to know highly critical factors which influence inequity. With this backdrop, the present study investigates inequity in water access by area, source, location (planned and unplanned), income status, and household ownership. It provides empirical evidence from urban households of Cuddalore district, Tamil Nadu.

The next part of the study is arranged as follows: Section 2 presents the sampling technique, selection procedure of urban households and data collection method. Section 3 provides the analytical framework (quantitative technique) of the study. Section 4 details the brief profiles of the surveyed municipalities. Section 5 presents the findings of the primary survey. Section 6 discusses inequity in water access in the light of Muti-variate ANOVA. Section 7 provides the summary of the findings, conclusions and policy suggestions.

2. Sampling and Data Collection

Multi-stage, disproportionate, stratified random sampling technique (or) area sampling technique has been adopted to study multidimensional inequity in water access among the urban households of Cuddalore district, Tamil Nadu.

According to the Tamil Nadu Water Supply and Drainage Board (2009) and Press Information Bureau (2015) of Government of India, the water supply performance of the municipalities in Cuddalore district is below the average of the state level. Due to this vital reason, Cuddalore district is selected at the first level. At the second level, Cuddalore, Chidambaram, Virudhachalam, Panruti and Nellikuppam municipalities of the District are selected. In the third level, areas within the municipalities are classified into 'slum', 'moderately developed' and 'developed' categories. The slum area is identified based on the Slum Area Act 1956. Areas where buildings are unfit for human habitation, and which are overcrowded, and have narrow streets, lack of ventilation facilities, and inadequate basic urban services are considered as slums. The urban expansion and recently developed residential areas are treated as moderately developed areas while the central part of the urban areas are considered as developed areas.

In each municipality, 60 sample households are randomly selected from slum areas (20 households), moderately developed areas (20 households) and developed areas (20 households). In total, 300 households have been surveyed with pre-tested and structured interview schedules. The data collection has been done during 2016-18.

3. Analytical Framework

Mutivariate ANOVA is adopted to examine the inequity in access to water supply among the urban households. More specifically, the core objective of the paper is to examine multidimensional inequity in water access by area, water sources, location (planned and unplanned), income and household ownership. Inequities in access to water could be analysed by comparing the means of the different groups, and all this requires an ANOVA model to be used. Therefore, a multivariate ANOVA model has been applied to understand the multifaceted inequities.

4. Profiles of the Surveyed Municipalities: Population and Water Supply

Population in the municipalities has been steadily increasing over the period. Cuddalore municipality consists of more than 40 per cent of the total municipal population of the district (see Table 1). Growing population and increasing population density convey the need for sustainable policy formulations.

Table 1: Population Profiles of the Surveyed Municipalities

Sl. No.	Municipalities	Census					
		1991	Density	2001	Density	2011	Density
1.	Chidambaram	58740	12238	57733	12028	62153	12949
	(4.80 Sq. Km.)	(16.8)		(15.4)		(14.9)	
2.	Cuddalore	144561	5221	158634	5729	173636	6271
	(27.69 Sq. Km.)	(41.3)		(42.2)		(41.7)	
3.	Nellikuppam	42783	1991	44222	2058	46678	2172
	(21.49 Sq. Km.)	(12.2)		(11.8)		(11.2)	
4.	Panruti	51394	2850	55346	3070	60323	3346
	(18.03 Sq. Km.)	(14.7)		(14.7)		(14.5)	
5.	Virudhachalam	52819	2066	60164	2353	73585	2878
	(25.57 Sq. Km.)	(15.1)		(16.0)		(17.7)	
	Total	350297	3590	376099	3854	416375	4267
	(97.58 Sq. Km.)	(100)		(100)		(100)	

Sources: "District Census Hand Book: Cuddalore District", Directorate of Census Operations (2011), Tamil Nadu; and "Cuddalore District: Municipalities", Digital India (2020), retrieved on March 18, 2020 from http://cuddalore.nic.in/publication-utility-category/municiaplity/

Total water supply capacity (see Table 2) revealed somewhat inverse relationship between population and availability of water in terms of litres per capita per day (lpcd) in the surveyed municipalities. Cuddalore and Chidambaram are located in coastline and having backwaters. Ground water extraction and absence of rainwater harvesting had severely affected both the water table and the quality of water in these two municipalities. In 2004, Tsunami further deteriorated water quality and frequent cyclones greatly affected the water supply infrastructure in the study area. Nellikuppam, Panruti and Virudhachalam municipalities are located in the central area of the district. Availability of water sources, contentious expansion of supply infrastructure and manageable population density helped them to avail better water supply services compared to Cuddalore and Chidambaram municipalities.

Table 2: Water Supply Capacity and Availability of Water in Terms of Litres Per Capita Per Day (LPCD)

Sl. No.	Municipalities	Total Water Supply Capacity (in million litre per day)	Availability (in lpcd)
1.	Chidambaram	3.90	63
2.	Cuddalore	14.50	74
3.	Nellikuppam	4.56	98
4.	Panruti	7.50	90
5.	Virudhachalam	12.00	120

Source: "Cuddalore District: Municipalities", Digital India (2020), retrieved on March 18, 2020 from http://cuddalore.nic.in/publication-utility-category/municiaplity/

5. Socio-economic Status and Access to Water Supply

The total number of family members in the surveyed household is 1486 (slum: 486; moderately developed: 494; and developed: 506). Average family size of the study area is 5. The slum households are located in unauthorized urban areas; and the moderately developed and developed households are located in planned urban areas. In the study area, there are three major sources of water supply, namely, self (own source), public and market. The self (own) water supply sources refer to the water supply sources which are available within the premises of the households (e.g. own ground water sources and municipal connection). The public bore wells, public hand pumps and municipal common taps are the major public water supply sources. The packed water and water supplied by tankers are the important mode of private or market water supply sources. However, households were found to use different combinations of water supply sources that were available in the study area.

Water Supply Sources

The performance of water supply system is indispensable to satisfy daily needs of the people. The existing water supply sources in the study area are given in Table 3. The sources (including the combinations of sources) of water supply are as follows: (i) public, (ii) self (own source), (iii) public and self, (iv) public and market, (v) self and market and (vi) public, self and market.

Of the surveyed households, 23.67 per cent households exclusively use public sources and 17.33 per cent rely only on self (own) sources (Table 3). 20.33 per cent households use both public and self sources; 6 per cent of them rely on self and market sources; and remaining 17 per cent use the combination of public, self and market sources.

In slums, 53 per cent of the households solely depend on the public water supply, followed by 30 per cent using both public and self-water supply sources. The contributions of other sources (or combinations) are not much significant. In moderately developed areas, the households use various sources, viz., public, self, public-and-self, public-and-market, self-and-market, and public-self-and-market sources. However, the contributions of self and combination of public and self are relatively high, compared to other sources, in the moderately developed areas. The households in developed areas depend on self, self-and-market and public-self-and-market sources. But, the contributions of other sources are too little.

It explains that the sources of water supply significantly differ among the urban areas. Particularly, in slums, public and the combination of public and self sources are dominant. In moderately developed areas, the households predominantly depend on self, and self-and-public sources. But, it widely differs in developed areas. The households of developed areas mostly depend on self, and the combinations of self, and market and public sources. Therefore, there are wide variations as far as uses of different water sources in the urban areas are concerned.

The use of self-and-market sources are relatively very high in the developed areas. This is attributed to the fact that the households in such areas are highly elite. Either they are employed in organised sector, or engaged in established businesses. They are capable of installing their own sources of water supply for their own consumption. Another important reason is that using hygienic water is an essential condition for their family health. It is also noteworthy that the use of public water sources is dominant in slums. This is attributed to their low income status.

Table 3: Details of Water Supply Sources

Sl. No.	Sources	Urban Area			Total
		Slum	Moderately Developed	Developed	
		(n=100)	(n=100)	(n=100)	(N=300)
1.	Public	53 (53.00)	15 (15.00)	3 (3.00)	71 (23.67)
2.	Self (own source)	4 (4.00)	25 (25.00)	23 (23.00)	52 (17.33)
3.	Public-and-Self	30 (30.00)	23 (23.00)	8 (8.00)	61 (20.33)
4.	Public-and-Market*	5 (5.00)	7 (7.00)	6 (6.00)	18 (6.00)
5.	Self-and-Market*	0 (0)	12 (12.00)	35 (35.00)	47 (15.67)
6.	Public-Self-and-Market*	8 (8.00)	18 (18.00)	25 (25.00)	51 (17.00)

Notes: (i) Figures in parentheses are percentages to total sample; (ii) *Packaged water and vendor's water supply
Source: Field survey

Water Accessed from Various Water Supply Sources — Litres Per Capita Per Day (LPCD)

The quantity of water accessed per day from various sources of water supply is presented in Table 4. In slums, the households access substantial quantity of water from the combination of pubic, self and market sources (65 lpcd) compared to other sources such as public-and-self (54 lpcd), self (46 lpcd), public (38 lpcd) and public-and-market (32 lpcd). As the slum households face the problem of water access, they are forced to access water by traveling relatively long distance from their home. The households of moderately developed and developed areas access maximum quantity of water from the combinations of self, public and market sources.

Thus, self water supply sources play a major role in distributing water for the households of moderately developed and developed areas. In slums, self and public water supply sources are insufficient in number to provide water to the huge populace. But, in moderately developed and developed areas, the households mostly own self taps. As a whole, slum households suffer due to insufficient sources of water supply compared to moderately developed and developed areas.

Table 4: Water Accessed from Various Sources (LPCD)

Sl. No.	Sources	Urban Area		
		Slum	Moderately Developed	Developed
		(n=100)	(n=100)	(n=100)
1.	Public	38	60	36
2.	Self (own source)	46	166	157
3.	Public-and-Self	54	99	109
4.	Public-and-Market*	32	37	35
5.	Self-and-Market*	0	169	170
6.	Public-Self-and-Market*	65	65	124

Note: *Packaged water and vendor's water supply
Source: Field Survey

Number of Households Per Public Water Supply Source

The details of the households that depend on public water supply sources are given in Table 5. As illustrated in the table, 7 households in slum areas, 3 in moderately developed areas, and 2 in developed areas depend on public hand pump. It shows significant variations in the three areas.

The number of users per public tap is 9 in slum areas which is quite high compared to other areas. In the case of bore well, the number is 41 for slums. It implies that the number of households depending on public water supply source is huge in slums compared to moderately developed and developed areas. This explains the inequality in distribution of water in the study area, which considerably affects the slum households in the municipality areas.

Table 5: Number of Households Per Public Water Supply Source

Sl. No.	Sources	Urban Area		
		Slum	Moderately Developed	Developed
		(n=100)	(n=100)	(n=100)
1.	Hand Pump	7	3	2
2.	Tap	9	5	3
3.	Bore Well	41	8	6

Source: Field survey

Household Income and Access to Water Supply

In order to explore the incidence of inequality in water access, this section focuses on the relationship between income of the surveyed respondents and their access to water supply. Income groups are classified as low (up to Rs 60,000), middle (from Rs 60,001 to Rs 1,50,000) and high (above Rs 1,50,000). Water accesses in terms of litres per capita per day (lpcd) are classified in 8 categories such as 0 - 30 lpcd, 31 - 60 lpcd, 61 - 90 lpcd, 91 - 120 lpcd, 121 - 150 lpcd, 151 - 180 lpcd, 181 - 210 lpcd and above 210 lpcd and they are presented in Table 6.

In total, 12.67 per cent of the households fall within 0 - 30 lpcd category and majority of them belong to low income households, followed by some middle income households living in slums and moderately developed areas. Also, in the 31 - 60 lpcd category, the low income group is the majority. Among all the lpcd categories, the 61 - 90 lpcd group forms the highest proportion, i.e. 21.33% (see the last column in Table 6). From the 91 - 120 lpcd category onwards, most of the beneficiaries are seen to be belonging to the middle and high income groups of moderately developed and developed areas. Hence, there is a clear tendency: The higher the income, the greater the access to water. This is more evident from the water access category of "above 210 lpcd". In this category, there is no beneficiary from the slum areas; besides, the presence of beneficiaries in the moderately developed areas is not much significant compared to the developed areas.

As a whole, it may be concluded that the low income households accessed relatively low quantity of water compared to the middle and the high income households in the urban areas of Tamil Nadu. In other words, the low income households of the slums are severely affected. The results imply that the economic status and area of residence determine per capita water access in the study area. Thus, the incidence of inequality in distribution of water supply sources has been confirmed in this study.

6. Multidimensional Inequity in Access to Water Supply: Multi-variate ANOVA

With the above analytical backdrop, this section seeks to analyse the multidimensional inequity in water access corresponding to area, water source, income and ownership of house with the help of the Multi-variate ANOVA model.

Table 6: Income Groups and Access to Water Supply (LPCD)

Sl. No.	Category of LPCD (Water Access)	Urban Area								All (N =300)
		Slum (n=100)		Moderately Developed (n=100)			Developed (n=100)			
		Low Income	Middle Income	Low Income	Middle Income	High Income	Low Income	Middle Income	High Income	
1.	0 - 30	27	9	1	0	0	0	0	1	38
		(32.14)	(56.25)	(3.13)	(0)	(0)	(0)	(0)	(2.86)	(12.67)
2.	31 - 60	28	3	11	7	0	3	7	0	59
		(33.33)	(18.75)	(34.38)	(17.07)	(0)	(30.00)	(12.73)	(0)	(19.67)
3.	61 - 90	18	1	13	14	2	4	11	1	64
		(21.43)	(6.25)	(40.63)	(34.15)	(7.41)	(40.00)	(20.00)	(2.86)	(21.33)
4.	91 - 120	5	3	3	7	3	0	9	11	41
		(5.95)	(18.75)	(9.38)	(17.07)	(11.11)	(0)	(16.36)	(31.43)	(13.67)
5.	121 - 150	3	0	3	3	7	0	10	7	33
		(3.57)	(0)	(9.38)	(7.32)	(25.93)	(0)	(18.18)	(20.00)	(11.00)
6.	151 - 180	2	0	0	1	6	0	8	5	22
		(2.38)	(0)	(0)	(2.44)	(22.22)	(0)	(14.55)	(14.29)	(7.33)
7.	181 - 210	1	0	1	8	8	0	3	7	28
		(1.19)	(0)	(3.13)	(19.51)	(29.63)	(0)	(5.45)	(20.00)	(9.33)
8.	Above 210	0	0	0	1	1	3	7	3	15
		(0)	(0)	(0)	(2.44)	(3.70)	(30.00)	(12.73)	(8.57)	(5.00)
Total		84	16	32	41	27	10	55	35	300
		(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Note: Figures in parentheses represent percentage to respective column total
Source: Field survey

Framework of the Model

The multi-variate ANOVA Model is given below:

$$X_{ijklm} = \mu + \alpha_i + \beta_j + \theta_k + \lambda_l + l_m + \varepsilon_{jklm}$$

where, X_{ijklm} is the access to water supply (in terms of lpcd);

i = 1, 2, 3 (Area: Slum, Moderately Developed and Developed);

j = 1, 2, 3 (Water supply source: Self, Public and Combinations of Sources);

k = 1, 2, 3 (Income Category: Low, Middle and High);

l = 1, 2 (Location: Planned and Unplanned Urban Areas);

m = 1, 2 (Ownership of House: Own and Rented);

'μ' is the general effect of the determinants on the household's access to water supply (measured in terms of lpcd);

α_i refers to the effect of the area (as defined above) on the household's access to water supply;

β_j refers to the effect of the water source on the household's access to water supply;

θ_k is the effect of the household's income on the access to water supply;

λ_l is the effect of the household's location (defined above) on the access to water supply;

l_m is the effect of the household's ownership status (defined above) on the access to water supply; and

ε_{ijklm} is the random residual effect and independently, identically and normally distributed random variable with mean 0 and variance σ^2.

In order to examine the multidimensional inequity in access to water supply, the Multi-Variate ANOVA is applied. If the Multi-variate ANOVA 'F' ratio is found to be significant, then one can further proceed to test whether the mean differences between the pairs of parameters differ or not. In this context, the least square difference test is applied.

Results and Discussion: Multi-variate ANOVA Model

For testing the homogeneity of variances of the data pertaining to access to water supply (in terms of lpcd) among the three areas, i.e. slum, moderately developed and developed areas, the Bastlett's test is applied. The result indicates that the estimated value of Chi-square (15.6) is less than the Chi-square value at 5 per cent level (27.6) with 2 degrees of freedom. It implies that the homogeneity of variations with regard to access to water supply among the three areas in the Cuddalore district is accepted. Thus, one can proceed to the Multi-variate ANOVA Model. The results of the estimations are given in Table 7.

Table 7: Compared 'F' Ratios on Access to Water Supply in the Surveyed Urban Areas: Multi-variate ANOVA Model

Sl. No.	Source of Variation	Sum of Squares	d.f	Mean Sum of Square	'F'
1.	Variations due to areas	12627.50	2	6313.75	4.01*
2.	Variations due to sources	16549.82	2	8274.91	5.25*
3.	Variations due to incomes	10989.56	2	5494.78	3.49*
4.	Variations due to locations	106.85	1	106.85	0.06
5.	Variations due to ownerships	19575.40	1	19575.40	12.43*
	Error	455068.07	289	1574.63	-
	Total	3655961.00	300	-	-
	$\bar{R}^2$			0.70*	
	F-value			7.92*	

Note: *Significant at 5 per cent level
Source: Original data was collected through field survey

From the results of ANOVA model, the estimated 'F' values are found to be statistically significant. It confirms the variations in access to water supply corresponding to areas (4.01), sources (5.15), incomes (3.49) and ownerships of house (12.43). The estimated values are higher than the table value of 'F' at 5 per cent level and thus are statistically significant. However, the variation in access to water supply corresponding to location is not found to be statistically significant, as the estimated 'F' value (0.06) is lower than the table value of 'F' at 5 per cent level. The significant

parameters are compared pair-wise. Pair-wise comparisons of parameters are discussed below:

Area vis-à-vis Access to Water Supply

Access to water is maximum in the developed area (104 lpcd), followed by moderately developed area (92 lpcd) and slums (64 lpcd), respectively (Table 8). The student 't' test indicates significant difference in terms of average per capita per day availability of water between slum and moderately developed area, and between slum and developed area. However, water availability (in terms of lpcd) between moderately developed and developed area is not found to be statistically significant (see Table 8).

Table 8: Area vis-à-vis Access to Water Supply

Sl. No.	Area-wise Comparative Illustration of Water Access between Areas		Mean Difference	't' Value
1.	Slum (63.53 lpcd)	Moderately Developed (91.64 lpcd)	-28.11	2.48*
2.	Slum (63.53 lpcd)	Developed (104.20 lpcd)	-40.62	3.93*
3.	Moderately Developed (91.64 lpcd)	Developed (104.20 lpcd)	-12.50	1.33

Note: *Significant at 5 per cent level
Source: Original data was collected through field survey

Mean comparison confirms the variations between areas. Since the slum households are economically backward, incidence of installations of bore well, hand pump, tap connection, etc. and accessing water from market is low. But the phenomena are a bit different for the moderately developed and developed areas.

Water Source vis-à-vis Access to Water Supply

The households which use self (own) sources of water have higher availability of water (118.40 lpcd), followed by those who opt for combinations of sources (92.17 lpcd) and those which use only public sources (64 lpcd), respectively (see Table 9). The student 't' test is statistically significant between self and public sources (4.55), between self and combinations of sources (2.71) and between public sources and combinations of sources (2.90).

Higher water access from self (own) sources is mainly attributed to the following reasons. In the surveyed urban areas, the water access from public tap is possible only for the fixed timing of supply. The water access from public hand pump consumes time and requires human labour. In addition, the number of dependents on the public water supply sources is huge in the surveyed areas. But water access from self (own) sources is free from all these constraints. Thus, the self (own) sources facilitate urban households to access large quantity of water compared to the public sources and combinations of various sources.

Income vis-à-vis Access to Water Supply

The present study, as already mentioned, classifies the income of the households into three categories, viz., low income (up to Rs. 60,000), middle income (from Rs. 60,001 to Rs. 1,50,000) and high income (above Rs. 1,50,000). The water availability is high for the high income group (143 lpcd), followed by the middle income group (106 lpcd) and the low income group (61 lpcd), respectively. The estimated 't' values between low income and middle income (8.60), between low

income and high income (13.23), and between middle income and high income (5.90) are found to be statistically significant at 5 per cent level (see Table 10).

Table 9: Water Source vis-à-vis Access to Water Supply

Sl. No.	Water Source-wise Comparative Illustration of Water Access		Mean Difference	't' Value
1.	Self Sources (118.40 lpcd)	Public Sources (63.66 lpcd)	54.70	4.55*
2.	Self Sources (118.40 lpcd)	Combination of Sources (92.17 lpcd)	26.19	2.71*
3.	Public Sources (63.66 lpcd)	Combination of Sources (92.17 lpcd)	-28.50	2.90*

Note: *Significant at 5 per cent level
Source: Original data was collected through field survey.

Table 10: Income vis-à-vis Access to Water Supply

Sl. No.	Income Category-wise Comparative Illustration of Water Access		Mean Difference	't' Value
1.	Low Income (61.18 lpcd)	Middle Income (105.47 lpcd)	-44.29	8.60*
2.	Low Income (61.18 lpcd)	High Income (142.56 lpcd)	-81.38	13.23*
3.	Middle Income (105.47 lpcd)	High Income (142.56 lpcd)	-37.09	5.90*

Note: *Significant at 5 per cent level
Source: Original data was collected through field survey

The high income group accessed greater quantity of water (in terms of lpcd). Actually, the high income households could afford to install their own water supply sources within the house premises and thus access desired quantity of water and also buy water from market, whereas cent per cent of the low income households purely depend on the public water supply sources for their water access. Limited public water supply sources often induced water collection related conflicts among local residents. These factors unfavorably affected the wellbeing of the low income households in the surveyed urban areas.

Ownership of House vis-à-vis Access to Water Supply

In the present study, the ownership of house is classified into two categories such as own house and rented house. The student 't' value for testing average water availability (in terms of lpcd) is found to be statistically significant at 5 per cent level. The result indicates that water availability is much higher for the own house category (98 lpcd) than for the rented house category (66 lpcd). This variation is due to the following reasons. People who reside in their own house are able to get municipal water connection within their house premises and also can install ground water sources. In the case of rental house, ownership restricts installation of water supply sources according to the need of the household.

7. Conclusions and Policy Suggestions

The results of this study confirm existence of multidimensional inequity in access to water supply among the urban households. Some criteria such as area where the house is located, source of water

supply, household income, and ownership of house helped us to observe the incidence of inequity. Household income is largely responsible for such inequity, followed by water source, type of area and house ownership, respectively.

This study finds that there is no significant inequity in water access between developed and moderately developed areas. But, slum households are facing wide range of inequity compared to people living in both moderately developed and developed areas.

In order to ensure equity in distribution of water, this study provides three suggestions as follows: (i) Authorities need to review the existing water distribution systems and check if there are any shortcomings. (ii) Appropriate institutional mechanisms are mandatory to ensure equitable distribution of ground water sources and thus equity in water access. (iii) The slums require special attention and thus there is a need to increase number of public tap and ground water sources in the slums areas; and maintenances of all the sources need to be regularly carried out.

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THE EXTENT OF FINANCIAL INCLUSION AND THE CREDIT ACCESSIBILITY OF SCHEDULED CASTE HOUSEHOLDS

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Abstract: Financial inclusion is the most important aspect of achieving inclusive growth in an economy. The major objective of this study is to analyse the influence of financial inclusion on the incidence of borrowings of the Scheduled Caste (SC) households in Kerala. The study has employed the financial service usage dimension for constructing an indicator for measuring the extent of financial inclusion of the marginalized SC households. The study has found that the share of formal borrowing of SC households increases with their financial inclusion. Interestingly, the study has also observed that as the extent of financial inclusion improves, various informal sources are increasingly supplying credits to the SC households. The study has found that the operation of informal financiers is highly prevalent, and these financiers' supply of credit accounts for a significant share of borrowings availed by the SC households.

Keywords: Financial inclusion, Sources of credit, Informal borrowing, Self-help groups, Scheduled caste households

Introduction

Universal financial inclusion is a prerequisite for inclusive growth. Financial inclusion means connecting the marginalised as well as the deprived sections to the mainstream economy by enhancing the incidence of financial literacy and providing access to banking and financial services. Various studies show that access to credit positively influences the economic welfare of the poor (Khandker, 1998; Panjaitan et al., 1999; Remenyi and Benjamin, 2000; and Wright, 2000). Financial inclusion has been recognized as a crucial public policy in India, and thus various programs have been initiated by the Government of India, Reserve Bank of India (RBI), and National Bank for Agriculture and Rural Development (NABARD) for achieving the desired goal in this regard. Such initiatives include nationalization of commercial banks, expansion of branch networks in rural areas; development of cooperative banking sector; introduction of priority sector lending norms, and Self-Help Group – Bank Linkage Programme (SHG-BLP). Of late, the announcement of Prime Minister's Jan Dhan Yojana (PMJDY) has emerged as the biggest fillip to financial inclusion efforts (Kumar et al., 2015) in India. This study attempts to analyse the impact of SHG-BLP on achievement of financial inclusion among the Scheduled Caste (SC) population in a district.

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The SHG-BLP is an innovative model initiated by NABARD in 1992 to deliver affordable door-step banking services and has largely realized the stated goals of financial inclusion. The program has become an effective intervention in the economic upliftment and financial inclusion of those at the bottom of the pyramid (NABARD, 2020). After introducing the Pradhan Mantri Jan Dhan Yojana (PMJDY) in August 2014, the national financial inclusion agenda has taken long strides to expand access to basic financial services to the most vulnerable sections of the country's population. As a result, by 2017, 77 per cent of the poorest 40 per cent in India had an account with a financial institution, the highest amongst BRICS countries (BIRD, 2019).

Even though these initiatives have had positive impacts on the flow of credit, the accessibility of formal credit of the socially vulnerable groups remains a big challenge. The presence of informal agencies in the disbursement of rural credit among the vulnerable groups like SC is still widespread. The persistence of the informal rural credit market is often strongly debated in the policy discourses in India. But most of these discussions are based on macro-level data. A scientific estimation of the status of accessibility of credit at the household level among the socially vulnerable groups and a systematic study of the role of SHGs in the context of financial inclusion are called for. With this background, this paper seeks to analyze the extent and influence of financial inclusion programmes on the accessibility of the SC households to credit and the incidence of informal borrowings among SHG and non-SHG members of SC households. The study found that the operation of informal financiers is highly prevalent, and they account for a significant share of credit availed by SC households and hence they have a definite role in providing finance to the weaker sections in the rural areas.

Background

India accounts for 23.88% of the world's poor, who live on less than $ 1.90 a day (World Bank, 2019). Various studies on poverty have revealed that one of the major hurdles obstructing the poor households from participating in the development process is their exclusion from the financial system. As a result, the marginalized households find it extremely difficult to take advantage of economic opportunities, build assets, finance their children's education, and protect themselves against external financial shocks (Kochhar, 2009). Credit is considered a key contributor in increasing the productivity of land and labour. It can boost income levels, increase employment at the household level and thus alleviate poverty (Adugna and Heidhues, 2000).

Moreover, credit helps poor people smoothen their consumption patterns in times of lean periods (Binswanger and Khandker, 1995). However, accessing formal credit is difficult for low-income and socially backward marginalized households. While availing informal credits, the poor people get exploited by the moneylenders, as very high interest rates are charged in such cases (Gulliver and Morris, 2005). Access to credit varies across social groups (Karthick and Madheswaran, 2018), and the exclusion from the formal financial system forces the poor people to be getting into a vicious circle of poverty. The SC community is one of the socio-economically marginalised groups in India. Their access to credits is inhibited due to their lack of education, on the one hand, and the negative attitude of bankers, on the other. Although there are several credit related programmes/ schemes that have been launched by the government for the benefit of the poor, most of the schemes require a lot of paper-works, recommendations, and critical processings. All this excludes SC households from accessing benefits from the major government programmes (Singh, 2008).

According to the All India Debt and Investment Survey (AIDIS) data of 48th round (January-December 1992) and 59th round (January-December 2003), commercial banks were found to be the

most important source of credits for SC households in 1991. However, there was a sharp decline of this in 2002, which was offset by increased lending by local unauthorised moneylenders.

The Survey of Small Borrowal Accounts conducted by the RBI[1] has shown a better concentration of weaker segments of the society in the disbursal of credit. According to the Basic Statistical Returns (BSR) data of the RBI on banking statistics for the period from 1975 to 2008, small borrowal accounts are predominant in number, accounting for over 87% of all borrowal accounts. However, the Survey shows a fall in the percentage of credit flowing to SCs and the percentage of accounts they held between 1993 and 2008. Moreover, the declining trend has been sharper since the commencement of financial sector reforms in India. As per the Survey, SCs had a share of 18 per cent in the total number of small borrowal accounts in 1993, and it declined to 17.8% in 1997 and then further it dropped to 12.2% in 2001. The fall since 2001 raises one's eyebrow where it collapsed to 6.7% in 2004 and touched the level of 3.3% in 2008. Even though the share of small borrowal accounts has increased to 8.4% in 2015, the share of marginalized communities has not shown any palpable improvement.

Financial Exclusion can be defined in two ways. Firstly, it is the exclusion from the financial transaction system, i.e., not having access to a bank account, and secondly, it is the exclusion from the formal financial services (Thorat and Thorat, 2007). To ensure the outreach of financial services to all, the RBI urged the banks to make Financial Inclusion one of their prime objectives in its Mid Term Review of Monetary Policy (2005-2006). The Committee on Financial Inclusion under the chairmanship of Dr. C. Rangarajan, constituted by the Government of India on 26th June 2006, observed that financial inclusion is "the process of ensuring access to financial services and timely and adequate credit where needed by vulnerable groups such as weaker sections and low-income groups at an affordable cost" (Rangarajan Committee Report, 2008). According to the Report, 49.77% of Scheduled Caste households, 63.68% of Scheduled Tribe households, and 48.58% of Other Backward Class households were financially excluded.

Since 2006, the interventions under various Financial Inclusion programmes have been intensified by the Government of India, RBI, and NABARD. Initiatives such as the opening of "no-frill accounts" (subsequently renamed as Basic Savings Bank Deposit accounts), simplification in KYC (Know Your Customer) norms, the introduction of General Credit Cards (GCC), use of vernacular language, the one-time settlement, financial literacy are just a few among them. Further, to increase the financial outreach, RBI introduced the concepts of Business Correspondents (BCs) and Business Facilitators (BFs), which allow banks to offer door-step delivery of services. Furthermore, financial inclusion in India gained further momentum with the introduction of Pradhan Mantri Jan Dhan Yojana (PMJDY), launched as the National Mission for Financial Inclusion (NMFI) in August 2014. The programme envisages universal access to banking facilities (with at least one basic banking account for every household), financial literacy, access to credit, insurance, and pension.

Furthermore, in the last two decades, the major institutional innovation in India for expanding the poor's access to financial system has been the SHG-Bank Linkage Programme (SHG-BLP) (Khan, 2012). NABARD has pioneered the SHG-BLP, in which the SHGs as financial intermediaries enable the flow of bank loans to their poor members without physical collateral. The SHG-bank linkage model is now globally a major model of microcredit. As of 31 March, 2020, the SHG-BLP model has reached many a milestone with a total membership of about 1.02 crore groups, covering

[1]As per the RBI, a 'small borrowal account' (SBA) is defined as an account having a credit limit of up to up to ₹ 200,000 (₹ 25,000 till 1998 and ₹10,000 till 1983) https://rbi.org.in/scripts/bs_viewcontent.aspx?Id=3279 https://www.rbi.org.in/Scripts/BS_ViewBulletin.aspx?Id=15563

12.4 crore households across India. Moreover, the programme has made an indelible mark on the Indian financial landscape by extending loans to the extent of Rs.1,08,075 crore to 56.77 lakh SHGs as of 31 March, 2020 (NABARD, 2020).[2]

Historically, the role of SHGs in financial inclusion as well as economic development of the poor has been highlighted by various studies (Kumaran, 2002; Datta, 2003; Sreenivasan, 2005; Varman, 2005; Meher, 2007; Adhikary et al., 2010; Adhikary et al., 2012; and Bagli et al., 2013, among others). Of all SHGs, 'Kudumbashree' of Kerala state is a very significant (probably, the largest) women's SHG in India.[3] The Government of Kerala launched a programme for the poor in 1998, namely, Kudumbahsree which has been playing an important role in the financial inclusion of poor women (Rajagopal, 2020).

As the interventions under the Financial Inclusion approaches have been intensified, NABARD initiated the "NABARD All India Rural Financial Inclusion Survey" (NAFIS) in 2016-17 to assess the impact of these interventions on the institutional credit / insurance accessibility and livelihood of the rural poor. The survey has revealed that the institutional sources emerged as more preferred sources, with nearly 70% of loans reported to have been taken from them. The remaining proportion was taken from the non-institutional sources like relatives and friends, local large landowners, and moneylenders. More specifically, 11.5% of households were found to be dependent on local moneylenders and large landowners, exposing them to exploitation in the form of paying exorbitant interest rates. The persons resorting to local moneylenders include the illiterate or extremely poor who cannot access credit from formal institutions. This finding raises many questions on the functioning of institutional credit mechanisms (NABARD, 2018).

Access to formal credit is particularly a problem for the (poor) SC households. This may be attributed to a number of factors. Banks are largely reluctant to extend credits to poor applicants because of the uncertainty of repayment. The borrowers' vulnerability worsens problems of raising collateral. The poor are also alleged as 'bad clients' since they usually want to borrow for consumption needs, instead of investment purposes. Hence, their reliance on informal agencies, which provide them with instant credits at high costs, is more significant (Teki and Mishra, 2012). It is alleged that banks discriminate between loan applicants based on their castes (Kumar et al., 2015; Karthick, and Madhaveswaran, 2018). At the all-India level, their participation is less than 50 per cent of their share in the population.

Thus, the socially vulnerable sections are still facing barriers in accessing formal credits, even after the launch of various financial inclusion programmes. However, most of the studies on the accessibility of credit by SC households are largely based on macro-level data. Micro-level empirical studies are very limited. A micro study on this issue would be useful in understanding the behaviour of these people in the rural credit market. Keeping this in view, the present study seeks to delve into the following research questions:

1. What is the status of financial inclusion of the SC households?
2. How far the membership in SHG influences their inclusion status?
3. To what extent do the interventions under the financial inclusion programmes influence their sources of credits?
4. What is the impact of the SHG-Bank Linkage Programme on the borrowing by the SC households.

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[2] 1 lakh = 100,000

[3] Kudumbashree is the poverty eradication and women's empowerment programme implemented by the State Poverty Eradication Mission (SPEM) of the Government of Kerala.

The following are the objectives of this research:

1. To analyze the impact of financial inclusion measures on the SC households' access to credit.
2. To study the extent of financial inclusion with respect to the incidence of informal borrowings by SHG and non-SHG member households of the SC community.

The following are the hypotheses:

1. Informal borrowings by SC households decrease with the increasing incidence of financial inclusion.
2. Access to the SHG-Bank linkage programme reduces the incidence of informal borrowings.

The Rationale for Selecting the Study Area

For a detailed study about the extent of financial inclusion and the scope of Self-Help Groups among the SC households, Pathanamthitta district in Kerala state was selected. There have been two phases in the Financial Inclusion agenda of the Reserve Bank of India. The first phase ensured that each household had opened at least one bank account; the second phase focused on making banking services available to every village. As of 30 September 2011, Kerala state has been declared as the first state to achieve the goal. Compared to other states in India, Kerala had a higher percentage of people with bank accounts. The high intensity of banking among the population may result from the highest literacy prevailing in Kerala. According to the 2011 Census, out of 77,16,370 households in Kerala, 57,28,876 households availed banking services. Financial inclusion or inclusive financing is the deliverance of financial services at reasonable costs to sections of deprived and low-income segments of the society. Also, according to the Population Census 2011, SC households in Kerala have much greater access to banking services than the all-India average. One of the crucial and noteworthy efforts at facilitating greater inclusion in the financial sector of Kerala has been through connecting informal groups of SHGs with traditional banks in the organized sector. Kerala state has witnessed an extensive expansion of the SHG-BLP under the stewardship of the State Poverty Eradication Mission called Kudumbashree. Pathanamthitta district of Kerala has ranked first in the financial inclusion ranking list in the country (CRISIL 2014).[4] There is no unbanked village in Pathanamthitta district, and the banking penetration had reached a hundred per cent of the population.

Interestingly, credit disbursement against deposits in Pathanamthitta District was the lowest in Kerala, with the Credit-Deposit (CD) ratio of 27.14%, while the state average is 61.86% (Government of Kerala, 2018). A meagre CD ratio indicates that banks are not making full use of their deposit resources. Also, note that the SC population constitutes 9.1% of the total population in the state, whereas in Pathanamthitta district SC population accounts for 13.74% of the total population, and ranked third among the districts in Kerala in terms of concentration of SC population. For all these reasons, Pathanamthitta district has been chosen for the present study.

Methodology

Survey Design

The study has used both primary and secondary data for empirical analysis. Primary data has been collected from the sample SC households. The study area includes 8 Block Panchayats[5] and 4

[4] CRISIL or Credit Rating Information Services of India Limited is a global analytical company providing ratings, research, and policy advisory services.

[5] The Panchayati Raj Institution (PRI) consists of Gram Panchayat at the village level, Block Panchayat or Panchayat Samiti at the intermediate level, and Zilla Panchayat at the district level.

Municipal Corporations / Urban Local Bodies of Pathanamthitta district. For proper representation of urban and rural people in the sample data, one municipal corporation — namely, Pathanamthitta — and four Block Panchayats — namely, Elanthoor, Konni, Pandalam, and Parakkodu — have been selected through simple random sampling method.

Further, two Grama Panchayats from each of these four Block Panchayats have been randomly selected. They are: Omalloor and Elanthoor from Elanthoor Block Panchayat, Pramadom and Vallikkode from Konni Block, Thekkekkara and Kulanada from Pandalam Block, and Kodumon and Kadampanadu from Parakkodu Block. The sample size is 425. The sample households have been selected based on the proportion of the population in each Block Panchayat. Thus, 120 households from Pandalam Block Panchayat, 150 from Parakkodu Block Panchayat, 70 from Elanthoor Block Panchayat, 65 from Konni Block Panchayat, and 20 households from Pathanamthitta Municipality have been randomly selected. A structured interview questionnaire was used. Appropriate statistical methods and tools have been used to analyse the data. An adaptive financial service usage indicator has been constructed using the existing literature to understand the level of financial inclusion among the SC population (ADB, 2000; Rangarajan, 2008; United Nations, 2006; World Bank, 2006).

Indicators of Financial Inclusion

The Rangarajan Committee Report (2008) on financial inclusion has emphasized that financial inclusion does not primarily focus on providing credit and offering facilities for savings alone, but also incorporating the whole range of financial services, including money transmission mechanism, insurance, and savings mode suited to the income pattern of the poor. Hence, this study considers the financial service usage dimensions/indicators for assessing the extent of financial inclusion. The variables used are the access to and usage of financial services such as payment and remittance facilities, deposits, credit, and insurance. Hence, the financial services that have been used by the SC households were extracted by means of a primary survey.

Usage of banking services with the help of Cheque or Demand Draft, ATM Card / Debit Card for money withdrawal, usage of remittance services through bank, and receiving money through bank account are classified as payment and remittance facilities. The study also looks into SC households' access to the savings bank account, fixed deposit, and recurring deposit. Microfinance has been treated as a semi-formal source of finance, not being strictly formal (Basu, 2006). At the same time, as already said, the SHG-Bank linkage has been described as one of the largest microfinance interventions in the world (Christen, 2006). Thus, in this study, SHG savings account is considered as savings bank account, even though such savings are actually regarded as group savings. Access to credit is another important consideration of this study.

The study also takes into consideration insurance from any source or of any type for measuring financial inclusion, while insurance products mandatorily provided to the SC households by the government are not considered. Finally, in this study, financial inclusion indicators take into account the SC households' access to bank account, credit, payment-and-remittance services, and insurance products/services.

Since Financial Inclusion is an unobservable concept that is supposed to be determined by the interaction of a number of observed criteria, the weights assigned to the indicators are critical for an index. Here, financial inclusion is taken as a composite measure. There are two commonly used approaches for constructing composite indices: non-parametric and parametric methods (Cámara and Tuesta, 2017). In non-parametric method, one assigns the importance to indicators by choosing the weights exogenously. Sarma (2008; 2012) and Chakravarty and Pal (2010) are examples of

financial inclusion indices that apply this methodology.

In contrast, parametric methods assign the weights to the indicators endogenously, based on the information structure of sample indicators (Amidzic et al., 2014). This paper applied the methodology of assigning weights to the indicators based on the researchers' intuition (by using the mathematical concept of weighted average index numbers). The index was calculated based on the responses of selected variables used in the primary survey. Then, selected variables were assigned appropriate weights by using the judgment method. In this study, SC households have been identified as the basic unit of measurement of financial inclusion. Hence, while assigning appropriate weights to the variables, attention has been given to find households' access to financial services and usage of the services. The sub-indices are subsequently weighted according to importance. Thus, an acceptable weightage distribution was arrived at by incorporating different weighing schemes such as arithmetic average. Table 1 illustrates the procedure followed to measure the extent of financial inclusion among the SC households.

Table 1: Indicators for Measuring the Extent of Financial Inclusion

Services	Indicators	Weight	Subtotal
The Payment and Remittance Facilities	1. Usage of Cheque/DD	1	3
	2. Usage of ATM / Debit Card / Credit Card	1	
	3. Social security pensions or payment of bills	1	
Deposits	4. Savings bank account	3	6
	5. Fixed deposit	1	
	6. Recurring deposit	2	
Credit	7. Credit availed from commercial bank	3	9
	8. Credit availed from co-operative bank	3	
	9. Credit availed from SHG	3	
Insurance	10. Any source or type	2	2
Total		20	20

Source: Constructed by the authors based on the variables identified in the working definition of financial inclusion by the Rangarajan Committee Report (2008)

The scale of financial inclusion varies between values 0 and 20. In order to have a systematic analysis, the value 0 indicates complete financial exclusion, whereas the value 20 indicates full financial inclusion. The values ranging from 1 to 5 indicate low inclusion, 6 to 12 medium inclusion, and from 13 to 19 high inclusion.

The extent of financial inclusion shows that 53.4 per cent of SC households attained medium inclusion, and 29.4 per cent had low inclusion. And, among the SC households, 16.2 per cent were financially excluded who had no access to any formal financial services, whereas a very few (0.9%) had high inclusion. According to the 2011 Population Census, the percentage of SC households having access to available banking services in Kerala is 60.15, while this study found that SC households having access to available banking services in the Pathanamthitta district is higher (83.7%) than the state average. However, let us now turn towards the detailed findings of our study.

Results and Discussions

The Extent of Financial Inclusion and SHG-Bank Linkage

In interpreting the role of SHGs on the extent of financial inclusion and the incidence of indebtedness, households were classified into two categories — one, whose family members have an association with SHGs and, the other, family members of which do not have any association with SHGs. The interaction between the extent of financial inclusion and the membership in the SHG-Bank linkage programme is presented in Table 2.

Table 2: Extent of Financial Inclusion vis-à-vis SHG-Bank Linkage

Status of Financial Inclusion	SHG Members		Non-SHG Members		Total	
	Number	%	Number	%	Number	%
Fully excluded	0	0	69	39.2	69	16.2
Low inclusion	47	18.9	78	44.3	125	29.4
Medium inclusion	198	79.5	29	16.5	227	53.4
High inclusion	4	1.6	0	0	4	0.9
Total	249	100	176	100	425	100

Source: Field survey

There exists a clear association between the extent of financial inclusion and the membership in SHG. It is worth mentioning here that, among the non-members, 39.2 per cent of the households remained outside the purview of the formal financial system, whereas among the SHG members, no one is fully excluded. Moreover, among the SHG members, 79.5 per cent have medium inclusion, and 1.6 per cent could attain high inclusion. Meanwhile, among the non-members, the majority could achieve only low inclusion, and only 16.5 could achieve medium inclusion, whereas nobody could attain high inclusion. Hence, the households that are members of SHGs have higher levels of financial inclusion.

The Extent of Financial Inclusion and Source of Credit

The primary sources of credits for households are banks and cooperative societies (i.e., institutional), on the one hand, and moneylenders, traders, friends, and relatives (i.e., non-institutional), on the other. Thus, the credit market is characterized by formal (institutional) and informal (non-institutional) sources. As already said, this study considers SHG as a formal source of finance. Table 3 depicts the relationship between the different levels of the extent of financial inclusion, on the one hand, and the incidence of borrowing from formal sources, on the other. Table 3 shows that the share of formal credit increases with the increase in financial inclusion.

Now we look into the influence of the extent of financial inclusion on the incidence of borrowings from informal sources. The SC households appear to depend on both formal and informal sources of credit. Usually, low-income poor households like the SC repeatedly borrow from informal sources such as relatives, local shop-keepers and fellow villagers (Llanto, 1989). In India, even in certain areas where a bank is available, only 6.4 per cent of borrowings are from formal sources such as banks and co-operatives (Banerjee and Duflo, 2007). Hence, it is clear that the rest of borrowings depends on informal sources.

The definition of financial inclusion does not fully overlook informal sources of credit. It is considered that once the poor are provided with easy and cheaper credit, they tend to move away from informal finances. Interestingly, Table 4 shows that, for credits, SC households largely depend

on informal sources. Moreover, the share of informal credit increases, as the extent of financial inclusion improves. Only 14.6 per cent of SC households could move away from informal sources of financing.

Table 3: Extent of Financial Inclusion and the Incidence of Borrowing from Formal Sources

Status of Financial Inclusion	Not Borrowed from Formal Sources		Borrowed from Formal Sources		Total	
	Number of households	%	Number of households	%	Number of households	%
Financially Excluded	69	100	0	0	69	100
Low Inclusion	111	88.8	14	11.2	125	100
Medium Inclusion	64	28.2	163	71.8	227	100
High Inclusion	0	0	4	100	4	100
Total	244	57.4	181	42.6	425	100

Source: Field survey

Table 4: Extent of Financial Inclusion and the Incidence of Borrowings from Informal Sources

Status of Financial Inclusion	Not Borrowed from Informal Sources		Borrowed from Informal Sources		Total	
	Number	%	Number	%	Number	%
Financially Excluded	15	21.7	54	78.3	69	100
Low Inclusion	18	14.4	107	85.6	125	100
Medium Inclusion	29	12.8	198	87.2	227	100
High Inclusion	0	0	4	100	4	100
Total	62	14.6	363	85.4	425	100

Source: Field survey

Influence of the Extent of Financial Inclusion on the Incidence of Informal Borrowings among SHG Member and Non-member SC Households

It would now be interesting to examine the influence of the extent of financial inclusion on SC households' informal borrowings. In this regard, both SHG member category and non-member category have been taken into account (Table 5).

In Table 5, we take into consideration the SC households which have been active in SHG groups in the last three years and accessed credits from any formal or informal source/s of finance in three preceding years. It is evident from Table 5 that regardless of the status of financial inclusion, both SHG members and non-members among the SC households accessed informal credits.

Thus, indebtedness to informal sources was one of the major problems observed among the SC households in the study area. Most of these households took loans from moneylenders, especially from those located in the neighbouring state, Tamil Nadu. These moneylenders are locally known as *annachi* (meaning elder brother). The loans taken from these moneylenders ranged from Rs. 1000 to Rs. 3000 at a time. They are lending money to these households without any collateral security. During the field survey, we found that *annachis* are regular visitors to the colonies of SC households that are seeking funds. Several moneylenders operate in the same colonies on a regular basis and,

interestingly, a household is indebted to more than one moneylender at a time. Since the amount is small, repayments on a daily/weekly basis are not so difficult for these people, majority of whom are daily wage earners. They are not much bothered about the rate of interest. These moneylenders respond remarkably quickly to the short-term credit requirements of the SC households. Apart from borrowing from *annachis* (who come from the neighbouring state, Tamil Nadu), the SC households also borrow from local moneylenders and other informal sources (informally known as 'blade companies') by pledging their gold ornaments. On certain occasions, they also resort to friends and relatives who provide small and frequent loans, either free of interest or at much convenient rates. Thus, this shows that the SC households are too much dependent on the non-institutional sources of credit.

Table 5: Extent of Financial Inclusion and the Incidence of Borrowings from Informal Sources: A Comparative Illustration between SHG Member Households and Non-SHG Member Households

Membership Status	Financial Inclusion Status	Not Borrowed from Informal Sources		Borrowed from Informal Sources		Total	
		Number of households	%	Number of households	%	Number of households	%
SHG Member	Excluded	0	0	0	0	0	0
	Low	6	12.8	41	87.2	47	100
	Medium	24	12.1	174	87.9	198	100
	High	0	0	4	100	4	100
	Total	30	12.1	219	87.9	249	100
Non-SHG Member	Excluded	15	21.7	54	78.3	69	100
	Low	12	15.4	66	84.6	78	100
	Medium	5	17.2	24	82.8	29	100
	High	0	0	0	0	0	0
	Total	32	18.2	144	81.8	176	100

Source: Field survey

Observations

Despite the official announcements of remarkable success of the financial inclusion programmes, this study finds that informal sources are still playing a dominant role as far as the needs of the poor and the marginalised for credits are concerned. The non-institutional moneylenders are playing active role, and credits from such sources account for a significant share of total credit availed by the SC households, as the moneylenders respond remarkably well (and also quickly) to their credit requirements. Formal institutions failed to reach the marginalised section of the society.

Thus, the study suggests the following measures to protect poor SC households from the clutches of the moneylenders:

- There is a need to improve financial literacy programme by organizing bank-linked Intensive Financial Literacy Campaigns at SHG level, at least twice a year. During the campaign, bank officials should disseminate information on family budgeting, money management, banking products and services, interest rates charged by banks, and interest rates charged by moneylenders. In addition, banks should also set up Credit Counseling Centers at the SHG level to transmit information regarding credit management.
- The services of SC Promoters, who are working under the Scheduled Caste Development Department, can also be extended in the financial literacy programme under the guidance

of bank officials. SC Promoters can educate people about financial disciplines and should take follow-up actions as necessary and also submit a report to the appropriate authorities. At present, SHGs are providing only one loan at a time. If the members are honest and repaying debts on time, SHGs should provide multiple need-based credits. This would help SHG members to reduce their dependence on informal sources of financing.

- Steps should be taken to redesign and reshape the formal banking system's financial products to enhance the accessibility of the SC population. Therefore, strategies should be adopted to make financial services trouble-free, hassle-free and reasonable.
- Effective steps should be taken to strengthen the scope of activities, particularly among the marginalized and weaker sections, by incorporating provisions of small-value remittance, small-value credit, collection of repayment of credits, collection of small-value deposits, etc. with the help of Banking Correspondent (BC) Model.
- For meeting the credit needs of the poor, the banks can also introduce a special kind of loan product called 'Emergency Fund' with the contributions from both bank and Government. Banks should take the initiative in opening a no-frill account in the name of the head of the household which wishes to get a loan but does not have a bank account. The account holders should not be permitted to withdraw the whole amount all of a sudden from the bank branch directly. Instead, the services of BCs would be adopted for handling transactions. On sanctioning the loan, an account holder can approach the BC and draw money at a subsidized interest rate, depending upon his/her need. Here, a BC should work as an institutional substitute for non-institutional moneylender, and s/he should be a regular visitor to the houses of the SC people at convenient times of the day in order to seek their requirements of funds.

Concluding Remarks

This micro study has attempted to examine the extent of financial inclusion among the SC population in the District of Pathanamthitta. Empirical analysis suggests that there is a correlation between the improvement in the extent of financial inclusion and heavy dependence of the SC households on informal sources for credits. The functioning of informal financiers is very prevalent in the district, and such credits account for a significant share of total credit availed by the SC households.

Interestingly, the study found that, regardless of the class of financial inclusion, both SHG members and non-members accessed informal borrowings. Limitations of the existing range of financial products provided by the formal institutions are the major reasons for the indebtedness of the SC population to informal sources. Linking SHGs with banks has not yet yielded desired results. Further efforts in redesigning and reshaping the existing products in accordance with the needs of the potential beneficiaries can ensure better outcomes.

The scope of this study is limited to the Pathanamthitta district only. Inter-regional studies among different social groups are needed for wide comparisons. Furthermore, insights from this article call for more collaborative research to understand better the consequences of financial exclusion in terms of credit (non)accessibility by the marginalised community.

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EMPOWERING WOMEN THROUGH ENTREPRENEURSHIP: THE ROLE OF PRADHAN MANTRI MUDRA YOJANA

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Abstract: Women entrepreneurs from all across the world suffer from several challenges in their growth and development process. Lack of easy access to capital and ownership of land or assets are identified to be the major constraints in the entrepreneurial journey of women from developing countries. To support entrepreneurial growth and overcome the problem of lack of capital, microfinance seems to be an alternative solution. Several microfinance institutions are already functioning in the economy to facilitate easy financing to the poor, but their effectiveness is still a question. The Govt. of India has recently launched a programme, namely, Pradhan Mantri Mudra Yojana (PMMY), which aims to fund the unfunded and encourage small and medium-sized entrepreneurs. The present study examines the role of mudra loan in promoting women entrepreneurship and empowering women of the Delhi-NCR region using tabular and graphical analysis.

Keywords: Mudra loan, Urban area, Women entrepreneurship, Women empowerment

Introduction

Women entrepreneurs from all across the world, especially developing countries, suffer from several challenges in their growth and development process. Major barriers to the entrepreneurial journey of women from developing nations are lack of easy access to capital and ownership of land or assets as women in such countries belong to male-dominated societies (Boden and Nucci, 2000; Brindley, 2005; and Ahmad, 2011). Studies have determined that lack of access to financial credit and impediments to procurement of finance are the biggest constraints in the development process of small and medium-sized enterprises (Karim, 2001; and McClelland, 2004). In case of women, the condition is even worse. Generally, it is believed that women undertake an income-generating activity on a relatively smaller scale as compared to men. Such activities require smaller funds which the banks are reluctant to lend because such loans are not proven to be cost-effective. Moreover, women entrepreneurs lack experience in handling and running an enterprise and may not have any history of financial borrowing or loan repayment which exaggerates the problem of financing (Carter et al, 2001).

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The current scenario points towards the need for programmes which specifically target and promote women entrepreneurship. To promote entrepreneurial growth and overcome the problem of lack of capital, microfinance seems to be an alternative solution. Exponential growth in microcredit facilities in Africa has paved way for new entrepreneurial opportunities for many households (Nelson and Temu, 2005). Microfinance can contribute immensely to poverty alleviation through facilitation of new venture creation and entrepreneurship (Mawa, 2008). These studies further argue that not only women entrepreneurship is boosted but the availability of better credit empowers women by increasing their capacity to financially contribute to their family. In addition, it strengthens their socioeconomic role, enhances their decision-making power, gives them power to exercise greater control over their economic resources and helps them establish their own individual identity outside of their family (Hashemi et al., 1996). Overall, microfinance helps women in becoming independent and self-confident in the public domain.

Therefore, an effort has been made by the Government of India to launch one such programme called Pradhan Mantri Mudra, Yojana (PMMY) to provide easy access to funds for setting up enterprises. The scheme was launched on 8th April 2015 with the motive to 'fund the unfunded' with minimal formal complications and procedures. It provides easy, collateral-free loans to people who are interested in running small and medium enterprises which require maximum capital of Rs 10 lakh.[1] In a way, this scheme is a channel to encourage women of our country to take up entrepreneurship and overcome their social and economic barriers by offering them loans without any collateral and hassle-free application process.

The PMMY scheme offers three types of products depending upon the financial requirement. The basic product 'Shishu' offers a loan of maximum of Rs. 50, 000. In case, the financial requirement is higher than Rs 50,000 but less than Rs 5 lakh then 'Kishor' product is a suitable option. People can opt for another product called 'Tarun', if their financial need is more than Rs 5 lakh but less than Rs 10 lakh. The snapshot of mudra loans sanctioned particularly to women entrepreneurs in India is presented in Table 1.

Table 1: Year-Wise Distribution of Mudra Loan among Women Entrepreneurs in India

Year	Shishu (Loan up to Rs 50,000)			Kishore (Loan from Rs 50,001 to Rs 500,000)			Tarun (Loan from Rs 500,001 to Rs 10,00,000)		
	Number of Accounts	Sanctioned Amount	Disbursed Amount	Number of Accounts	Sanctioned Amount	Disbursed Amount	Number of Accounts	Sanctioned Amount	Disbursed Amount
2019-20	3,57,17,217	1,09,659.78	1,09,222.18	2,98,8307	26,476.69	25,160.37	3,97,825	9,045.4	8,463.68
2018-19	3,34,03,579	96,253.15	93,977	28,75,392	26,741.23	25,666.77	7,83,591	10,039.23	9,509.46
2017-18	3,21,44,132	80,371.59	78,921.72	13,35,192	16,586.84	15,749.53	78,914	6,295.7	5,499.3
2016-17	2,84,72,344	66,997.91	66,185.86	6,24,925	9,541.63	8,733.38	49,625	3,750.13	3,330.54
2015-16	2,71,03,118	69,038.97	50,640.02	4,73,536	9,068.03	8,675.43	51,611	4,076.55	3,874.98

Note: Amount Rs in crore; 1 crore = 100,00,000
Source: Official website of Mudra scheme (https://www.mudra.org.in/Home/ShowPDF)

A variety of literature is reviewed on microfinance and its role in promoting women entrepreneurship and empowerment across different countries so that a similar study can be conducted in India in order to know how effective the Mudra Yojana is.

[1] 1 lakh = 100,000

Literature Review

Microfinance institutions promote entrepreneurship by lending financial support to those who need funds for their income-generating, productive activities. Women entrepreneurship is a popular concept these days. Some women are often seen to have involved themselves in entrepreneurial activities in order to contribute to household income, gain self-confidence and thereby to earn respect in society. The Government of India defines the concept of women enterprise as a productive unit that is owned and controlled by woman/women, having a financial interest of not less than 51% of capital and providing a minimum of 51% employment to women in that enterprise (Goyal and Prakash, 2011). Female entrepreneurship is often considered as an important aspect of economic development. Women perceive entrepreneurship as a journey towards equity and equality, and think that such a journey can pull them out of poverty and support them to lead healthy and respectful life (Ghosh and Cheruvalath, 2007).

Hashemi et al. (1996) study the level of women empowerment in six villages of Bangladesh during 1991-1994. Various indicators — for instance, ability to make purchases, economic security, comparative freedom from family domination, mobility, level of participation in political protests and campaigns, involvement in family decisions, and legal and political awareness — are employed to measure the level of women empowerment. The analysis reflects that non-availability of employment is the real reason behind the low level of economic participation of women. On the other hand, easy facilitation of microcredit through Grameen banks and BRAC banks has supported women to become self-employed. Despite low earnings now, women exercise better control on their earnings. They enjoy liberty and can purchase household things on their own. As a whole, they have earned respect from their family members. Furthermore, micro-lending programmes have played a significant role in reducing family violence against women.

Another study that examines the impact of microfinance programme on women empowerment in Bangladesh is undertaken by Pitt et al. (2006). The study analyses the effect of the participation of men and women in microfinance programme on the empowerment level of women in Bangladesh. Various dimensions of women empowerment are identified such as networks and freedom to visit places, ability to make purchases, family planning, awareness of legal and political issues, control over financial resources, and husband's behaviour and attitude towards his wife. Analysis points to a positive and significant impact of women's involvement in microcredit programme on their empowerment. Women that obtain loan exercise greater control over financial resources. They hold a strong opinion in family-related matters and children have greater access to food and clothing when women take over the charge of finance in the family.

Amin et al. (1998) investigate the role of microcredit on the empowerment of women residing in rural areas of Bangladesh. In the study, women empowerment is measured through three constructs i.e., authority index, inter-spouse consultation index and autonomy index. The results indicate a strong positive association between women empowerment indices and NGO micro-financing programmes, which generally stems from the active involvement of poor women in such programmes.

There are studies which discuss the constructs of women empowerment and how to measure women empowerment (Kabeer, 1999; and Wiklander, 2010). The study conducted by Kabeer (1999) reflects upon the measurement of women empowerment and the interdependence of individuals as well as the structural shift in the process of empowerment. The study incorporates three important dimensions, i.e., access to resources, proof of agency and validation of achievements into the indicators of empowerment to accurately measure the changes in women's lives and their

ability to make choices in life. Extending the concept of women empowerment further, Kabeer (2012) focuses on the effect of women employment on women's economic empowerment. It is put forth that, in addition to education, income-generating activity or employment has a positive and significant impact on women's wellbeing. Such economic growth further helps in promoting gender-equality in society.

Wiklander (2010) tries to find determinants of women empowerment and existence of gender-related issues within the rural households of Uttar Pradesh and Tamil Nadu states in India. The study highlights that, in Uttar Pradesh, women empowerment is explained by the education level of both men and women, age, district and village they belong to while, in Tamil Nadu, women empowerment is determined by the traditional ideas of age at the time of marriage, number of sons in the family, etc. Affiliation to scheduled castes and religious differences also have something to do with the concept of women empowerment. Keeping in view the differences in the determinants of women empowerment in two different states of India, it was concluded that no single model can fit all.

Handy et al. (2004) examine the impact of Chinmaya Rural Training Centre (CRTC), an NGO, located in foothills of Himalaya, on women empowerment. The study aims to identify if the employees of the NGO are themselves empowered, as they take the responsibility to empower their clients. The women empowerment index constructed by Amin et al. (1998) is referred to in the study with an additional component called the political autonomy index. To measure the level of women empowerment, data is collected from the NGO employees such as fieldworkers and supervisors who establish direct contact with the beneficiaries of the NGO. The findings highlighted that empowerment depends on the level of education attained and number of years served at the job, while age, income level and family structure are found to be insignificant. Moreover, the women who are now working in the NGO were the beneficiaries of the same NGO some years ago and today they are ranked considerably high on the empowerment.

According to Cak and Degermen (2015), microfinance practice aims at poverty alleviation and holistic development of the nation at large. Their study examines the role of microfinance on women entrepreneurship in Turkey. The result of the study shows that more than 90% of women seeking microcredit have successfully started their entrepreneurial activities such as hairdressing, sheep farming, bakery, poultry raising and agriculture. Furthermore, women have gained self-confidence, respect from their family members and enjoy a higher standard of living. A similar study is undertaken by Mahmood (2011) on the urban and rural areas of Punjab in Pakistan. 37 women borrowers of microfinance are considered for data collection. Most of the loan-seeking women are married in a male-dominated family where husband holds major decision-making power. It is seen that 62% of females took loan to set up a new business or expand their existing business. Women living in rural areas have taken up income-generating activities like tailoring and embroidery, breeding livestock and raising animals with the support of microfinance. In a study conducted in Punjab, India, Kaur (2014) also finds significant association between SHG membership and women empowerment. Bhatia and Singh (2019) study the effect of Pradhan Mantri Jan Dhan Yojana on the lives of 737 women living in urban slums of Ludhiana, Punjab. It is found that the scheme has been effective in improving the status of women and has a positive impact on social, economic, and political activities of women.

Several studies examine the role of women employment or entrepreneurship in empowering them (Nawaz, 2010; Pandey and Parthasarathy, 2019; Olu, 2009). In Bangladesh, Nawaz (2010) finds that microcredit facility has enabled women to become financially independent by helping

them establish their own business unit. Such women have started contributing to family income. Although entrepreneurship seems to play an important role in women empowerment, their presence in the field of politics remains limited. Political autonomy is also one of the dimensions of women empowerment which is not visible among women of Bangladesh. Pandey and Parthasarathy (2019) investigates the role of initiatives taken by the Government of India in promoting entrepreneurship among the women of three villages of Maharashtra. They find that welfare schemes launched by the state and the central governments such as E-Haat and STEP (Support to Training and Employment Programme for Women) have been playing a significant role in improving access to financial services among females. A study by Olu (2009) finds that microfinance institutions have positive impact on small-scale industrial (entrepreneurial) development in Nigeria. Kantor (2003) examines the role of home-based garment production work on women empowerment. The scholar discovers that improvement in the access of income to women does not sufficiently contribute to women empowerment. Duflo (2012) highlights that women empowerment and economic development are closely interrelated. Economic development leads to women empowerment in some ways while empowering women on the other hand contributes to economic development.

There are several studies which examine the role of debt in influencing the decision-making power of women (Garikipati et al., 2017; and Li et al., 2011). Garikipati et al. (2017) find in a study in Tamil Nadu that women who resort to instant loan have greater bargaining power relative to those who opt for planned loans. Due to the easy availability of instant loans, with least paper work, many women in south India rely on instant loans. However, it is further found that instant loans do not empower women in a true sense but only allow them to negotiate their position in the structural framework. Li et al. (2011) investigate the role of microcredit programme in empowering the women of China. The study finds that women have begun to exercise greater control over their financial resources after availing microfinance. They are now able to strongly voice their opinion in family-related matters and command more decision-making power.

Swain and Wallentin (2009) emphasize that women's participation in labour market is indicative of their level of empowerment and economic independence. Their findings indicate that female members of SHGs are more empowered than non-members. Banerjee and Ghosh (2012) aim to explore factors that influence women empowerment. Their study is based on two surveys conducted at different points in time (2005 and 2009) on the same set of respondents, i.e., SHG members. Results of the analysis highlight the importance of training in promoting self-employment among women and thus empowering them. Garikipati (2008) uses data from two villages that actively participated in SHG programmes in India to investigate the role of credit on women empowerment and household vulnerability. The study finds that the loan procured by women is majorly diverted either into production or consumption needs which help households deal with vulnerability crisis while lack of asset ownership by women affects their repayment status. Author suggests that women's control over household assets should be given priority so that the microcredit programme could fulfill its objectives.

Broadly, the review of literature has summarised the studies undertaken to examine the role of microfinance in promoting women entrepreneurship. The existing literature has focused on female beneficiaries of microfinance from developing nations, for instance, Bangladesh, Nigeria, Pakistan and India. There does not exist any primary study which examines the role of Pradhan Mantri Mudra Yojana, a type of microfinance, in the lives of women in India. Therefore, an attempt has been made to investigate the impact of Pradhan Mantri Mudra Yojana scheme on women entrepreneurship and empowerment in India. The present paper evaluates the effectiveness of Mudra Yojana. It

contributes to the overall assessment of the benefit derived out of the PMMY scheme in terms of empowering women of our country. The Mudra Yojana is at a nascent stage therefore the paper aims to provide a vision to the initiative taken by the Government of India to fund small and medium enterprises. Proper evaluation of the scheme and its benefits to the masses could facilitate better implementation of the programme and provide a direction for its expansion.

Objectives of the Study

The objectives of this study are:

1. To assess the role of Mudra loan in promoting entrepreneurship among the women living in the Delhi-NCR region.
2. To examine the impact of Mudra loan on different indicators of women empowerment.

Research Methodology

A survey is conducted among the female beneficiaries of Mudra loan, residing in the Delhi-NCR region. We contacted several banks to obtain authentic details of their female customers who have procured Mudra loan from them. The data related to the Mudra loan clientele was provided by the UCO Bank, New Delhi branch. Therefore, UCO bank has served as the authentic source for data collection. Convenience sampling was used for data collection. The clients of UCO bank were reached out over the phone to gather responses. 300 responses were collected through telephonic interviews and conversations to gather the required data. A wide range of questions related to their household matters, freedom in mobility, involvement in decision making, etc. are asked to gauge the impact of the Pradhan Mantri Mudra Scheme on women empowerment. The data is further analyzed using tabulation and graphical analysis to determine the effectiveness of Mudra scheme.

Analysis of Data

The descriptive statistics presented in Table 2 show that the mean age of Mudra beneficiries is around 36 years. Of the total sample 300, 82% are found to be married having at least two children (average). Furthermore, the mean number of assets owned by the respondents in their own name is 0.63. The data related to the household structure highlight that the majority of female loanees have at least one earning member in their family. Table 2 shows that at least one family member is dependent on each respondent's earnings.

Table 2: Demographic Characteristics of Respondents

Demographic Characteristics	Total Respondents (300)
Mean age of Mudra clients (women)	36.74
Mean number of children	2.14
Mean number of assets owned	0.63
Mean number of earning members in the family	1.74
Mean number of family members dependent on respondent's income	1.19
Married women (in percentage)	82%

Figure 1 describes the range of products available under the Mudra Yojana and the proportions of beneficiaries. It is quite evident from the pie-chart that more than three fourth (76%) of our sample has procured maximum credit of Rs. 50,000 i.e. they have opted for Shishu product, while 22% of women took a loan of more than Rs. 50,000 but not more than Rs. 5 lakh. Only a few women (2%) took a loan of more than Rs. 5 lakh (Tarun product). Overall, a large part of borrowers

has taken a loan of less than Rs. 50,000, which means that the majority of borrowers belong to poor families who are unable to bear larger financial risk. In other words, it can be said that mudra loan has been able to reach the targeted masses i.e. poor and weaker sections of the society.

Figure 1: Mudra Fund Benefits Availed by the Respondents

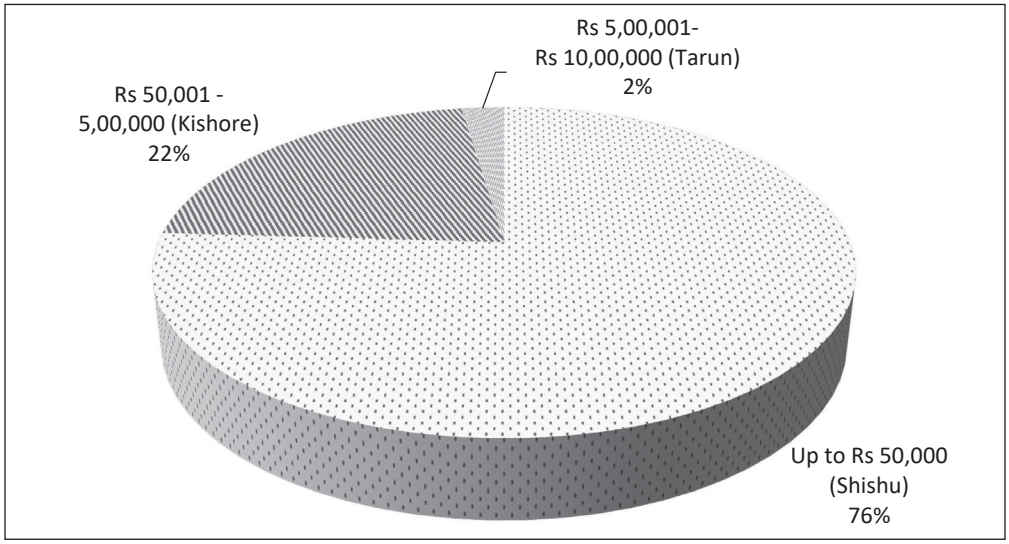


Table 3 describes the utility of the fund borrowed by the respondents. The respondents have obtained loan for several purposes. Of all the purposes listed in the table, maximum respondents said that they invested the borrowed money into their business which is either handled by them or by their husbands or both. In a way, around 40% of the respondents realized the true objective of Mudra Yojana (i.e. start/run an enterprise) and utilized it as per the direction of the scheme. On the other hand, an equal number of women (41.1%) have said that they have procured loan to meet their daily household needs (consumption). The third most popular reason to obtain loan is to buy new assets such as car, smartphone, e-rickshaw, etc. Around 5% of women agreed that the main motive of taking Mudra loan was to get rid of their old debts, whereas a small percent of women (2%) utilized their borrowed fund in building a new property or repairing the existing one. 1.7% of the respondents said that they have made further investments, while others (1.3%) said that they bought equipment for their business, spent money for children's education, daughter's marriage, medical expenses, etc.

In order to get an idea of how their journey of entrepreneurship is nourished by the Mudra loan, further questions were asked to the 40% women (as shown in Table 3) who have put their borrowed money into setting up new businesses or expanding existing ones. And this has been shown in Table 4. The responses received about the type of business activity they established using Mudra loan vary greatly. A quarter of respondents have opened up their own retail stores, while 14% of them run beauty parlours and only 5% own a boutique. More than half of the respondents are found to be engaged in different businesses such as opening as well as running a play school, tiffin services, tea stall, tuition centre, weekly markets, dental clinic, wellness centre, door to door supply services, etc.

Table 3: Utilisation of Loan by Respondents

Purpose of Loan	Percentage of Respondents
Consumption	41.1%
Investment/to lend others	1.7%
Bought/built/repair house property / plot of land	2%
Asset creation	8.4%
Setting up of a new business or expansion of an existing business of husband	40.1%
Repayment of old debt	5.4%
Other	1.3%

Table 4: Utilisation of Borrowed Fund in Establishing/Expanding Business

Business	Percentage of Respondents
Retail stores	25.2%
Beauty Parlour	13.7%
Boutique	5%
Other	56.1%

Furthermore, women were asked about the motivating factors behind setting up their economic activities. The responses are shown in Table 5. Market demand is found to be the major driving factor (65%). Prior experience in the field of existing business is also determined to be an essential factor for many women (45%) who are turning to be entrepreneurs. In addition to the market demand and prior experience, 42% of the respondents have agreed that an easy financing facility (Mudra loan) has encouraged them to start/expand a business. Availability of factors of production remains an insignificant factor (4.9%) in pushing women to take up an income-generating activity.

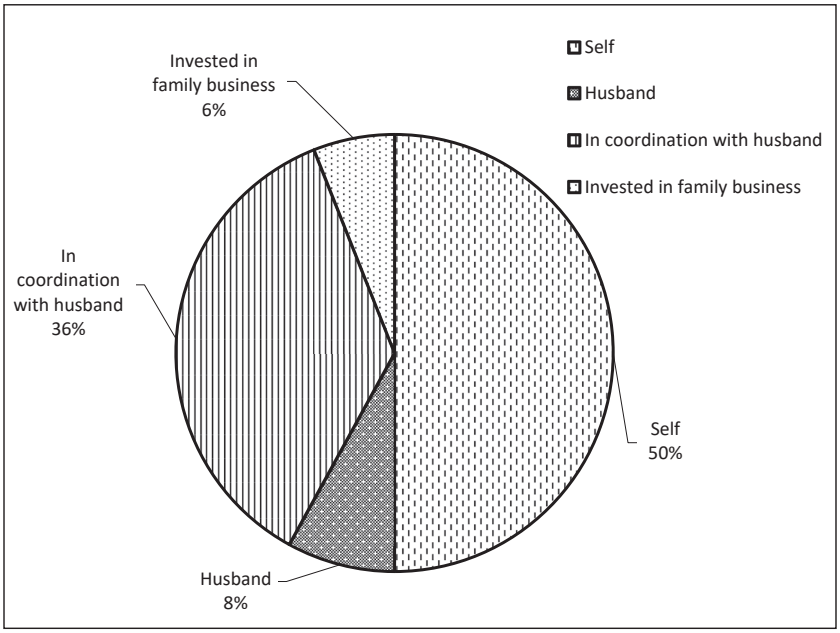
Table 5: Motivating Factors behind Setting Up an Economic Activity

Factors	Percentage of Respondents
Availability of Mudra loan	42%
Availability of factors of production	4.9%
Prior experience	45.5%
Low fixed investment	23.8%
Market demand	65%

Note: The total does not add up to 100, as several respondents opted for multiple answers

To know about the decision-making in business, women were asked about their decision-making capacity on business-related matters. It can be seen from Figure 2 that half of the respondents have said that they are in charge of their business and enjoy autonomy in taking decisions, whereas 36% said that they consult with their husband before taking a decision for their business. In other words, decisions are taken jointly by the husband and the wife. A small percent (i.e. 8%) of women said that the decision-making power lies in the hands of their husband. It might be possible that the business belongs to the husbands only, but the loan is procured in the name of the respondents. 6% of women have said that they invested their funds into their family business. In such case, the decisions are collectively taken by all family members.

Figure 2: Decision-making Power on Business-related Matters



Let us now take a look at Table 6. Around 65% of respondents have quoted a fall in market demand during recent times (i.e., Covid times) as the primary challenge in their business. Except for the essential items, all non-essential items have witnessed a plunge in their demand. Poor marketing strategy is also found to cause hindrance in the business for around 37% of women. Other than that, 35% said that they are struggling with financial issues on the business front which is why they opted for Mudra loan. Advanced technology, availability of raw materials and excessive market supply of the products/services by their competitors are also impediments to business, but their impact is found to be quite insignificant in comparison to the above-mentioned factors.

Table 6: Challenges Faced in Business

Challenges in Business	Percentage of Respondents
Marketing	37.7%
Skills/expertise	4.6%
Raw material	10.8%
Technology	17.7%
Finance	34.6%
Market supply	13.8%
Market demand	64.6%
Other	2%

Note: The total does not add up to 100, as several respondents opted for multiple answers

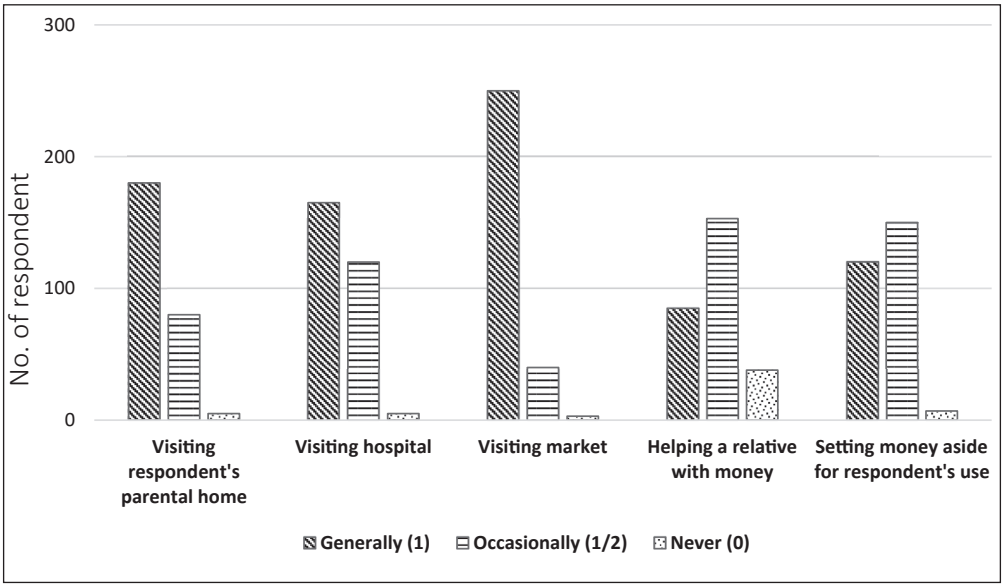
The index of women empowerment is adapted from prior literature (Amin et al., 1998; and Handy et al., 2004). As provided by Amin et al. (1998), the concept of women empowerment is

divided into three components comprising autonomy, authority and inter-spouse consultation index. The inter-spouse consultation index includes indicators that measure the extent to which husbands consult with their wives in household-related matters. Authority index measures the decision-making power of women, while the autonomy index takes into account freedom of women in terms of physical movement in the village or in the society, in the matters of savings and spending. Handy et al. (2004) discovered the fourth dimension of women empowerment, i.e., political autonomy. All four constructs of women empowerment are used below to determine the level of empowerment of Indian women.

Figure 3 explains the independence level of loan-taking women to determine their level of empowerment (Autonomy index). They were provided with a list of places such as their parental home, market or hospital, and were asked if they think that they were allowed to visit such places alone in the past. Maximum women have answered that they visit their parental house or market alone. They do not need any permission or assistance. They are free to go to the market or their mother's house without any help. When asked about visiting hospital alone, around 170 respondents said that they had visited hospitals alone. More than 100 women said that they had occasionally gone alone, but most of the time they had gone there with their partner or a family member. Although a majority of the respondents said that they are able to visit hospital alone, but the number of women is less in comparison to that visiting market and paternal house alone.

In contrast to the above responses about the women's mobility, the level of freedom drops significantly when asked if they are free to provide financial help to their relatives, if required. Maximum percent of women have answered—'occasionally'. It is not something they can do on their own. Now, it can be concluded that, in such types of financial matters, women do not have freedom. More than 100 respondents have agreed that they generally set aside some money for their own use, while around 150 women said that they do it occasionally. This means that they considerably contribute to their family income without taking much in return for themselves.

Figure 3: Level of Independence in Various Activities



To assess the decision making power of female respondents, several questions were asked related to their family matters such as children's education, family planning, family's day to day expenditure, going outside of the house for picnic/holidays, medical treatment, entertainment of guests, buying favourite things and voting decision during elections (Authority Index in Figure 4). A large section of our women respondents has said that most of their decisions are taken jointly on all the matters, in coordination with husband, except voting. Women expressed that the voting choice is not influenced. They have the freedom to decide which party deserves their vote. Among all the decisions which are taken collectively, family planning is one such matter where the maximum number of women, around 200, said that they coordinate and plan together. This big number (200) reflects that women do participate in deciding their family size rather than being forced to have children. The choice of women is equally important as that of men on such family matters. On the contrary, it is observed that women cannot buy their favourite things on their own. Around 170 women have said that they do consider the opinion of their husbands while buying things for their own use.

Figure 4: Decision Making on Various Matters

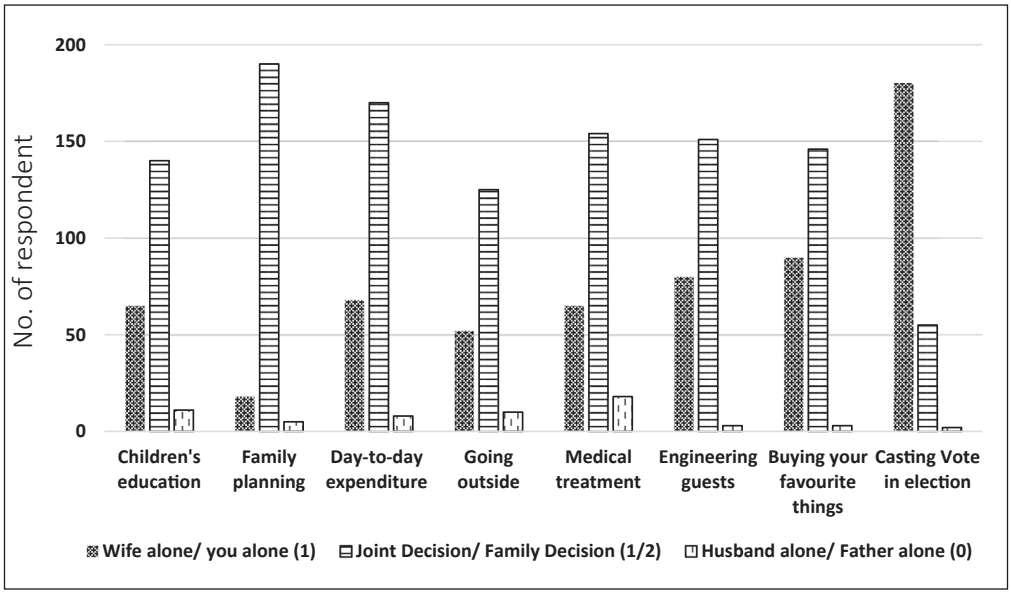


Figure 5 presents the inter-spouse consultation index of women empowerment. It involves several household issues such as buying furniture/utensils, buying any property/land, education expenses for children, medical treatment of family members, buying respondent's own clothes, buying children's clothes or even buying daily food, etc. It is seen that husbands' opinion on almost all household matters holds great value. Women alone cannot take the charge of all these matters. Consultation with husbands regarding these matters cannot be avoided. As can be seen in Figure 5, more than 150 respondents consult with their husbands while buying any utensil or furniture, land for their family, etc.; for deciding how much to spend for their children's education and medical treatment; and even while buying daily ration. On the other hand, women have also said that they enjoy autonomy in deciding what types of clothes they want to buy for themselves or their children.

However, a small proportion of respondents consult with their partners about buying their own clothes. Overall, it can be said that husbands do play a dominant role in family affairs and they are consulted by their wives on almost all matters.

Figure 5: Whether Consulting with Spouse on Various Matters

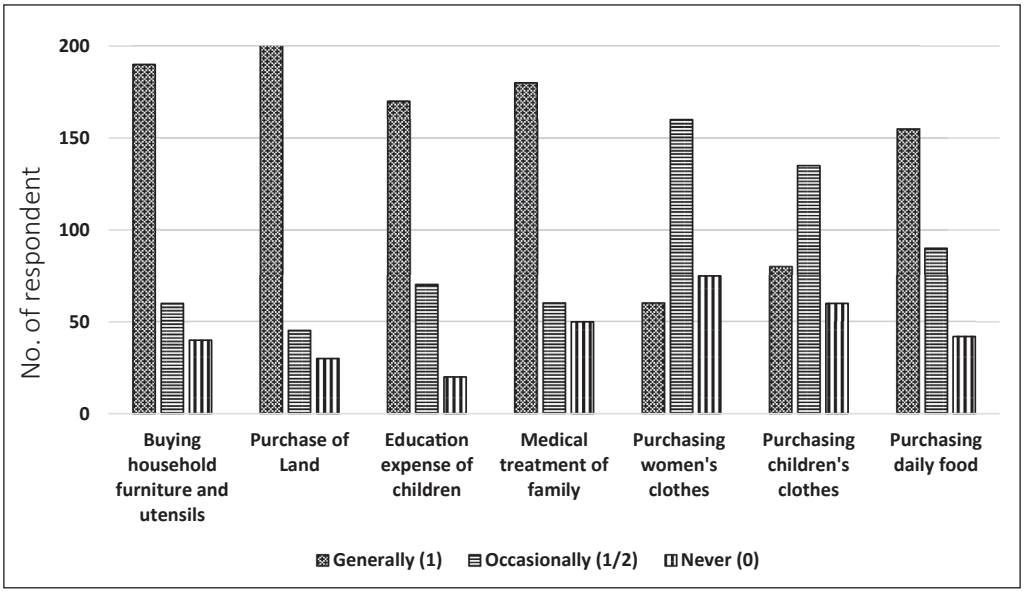
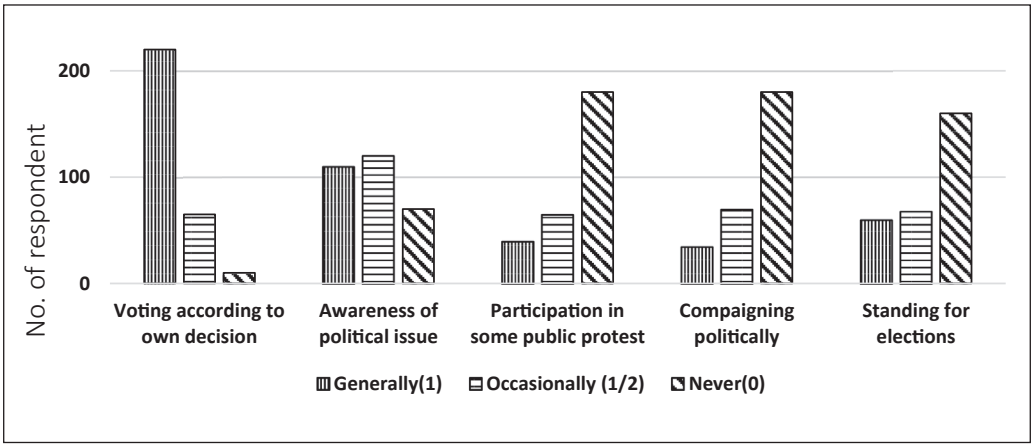


Figure 6: Women's Autonomy on Political Matters



Do the respondents have autonomy to decide which party to vote? More than 200 respondents answered that they have the right to decide which party to cast vote (political autonomy in Figure 6). On the contrary, when asked about the political awareness, surprisingly, only around 100 women were aware of the contemporary political issues, whereas an equal number of women or even more said that they do not regularly keep a track of the contemporary political matters of the country

but broadly they know the ideologies of each party and the work they are involved in. More than 50 respondents have said that they are not at all aware about the political activities in the country. Did the women participate in any public protest or campaigns in the past. Most of the women respondents never participated in public protests or campaigns, while an extremely small percentage of women said that they participated in political activities at least once in their lives. Lastly, do the women think that they are capable of contesting in elections? Only 15% of them said that they are interested, while 85% said that they are not interested in contesting in elections.

Figure 7: Improvement in Borrowing Capacity of the Respondents

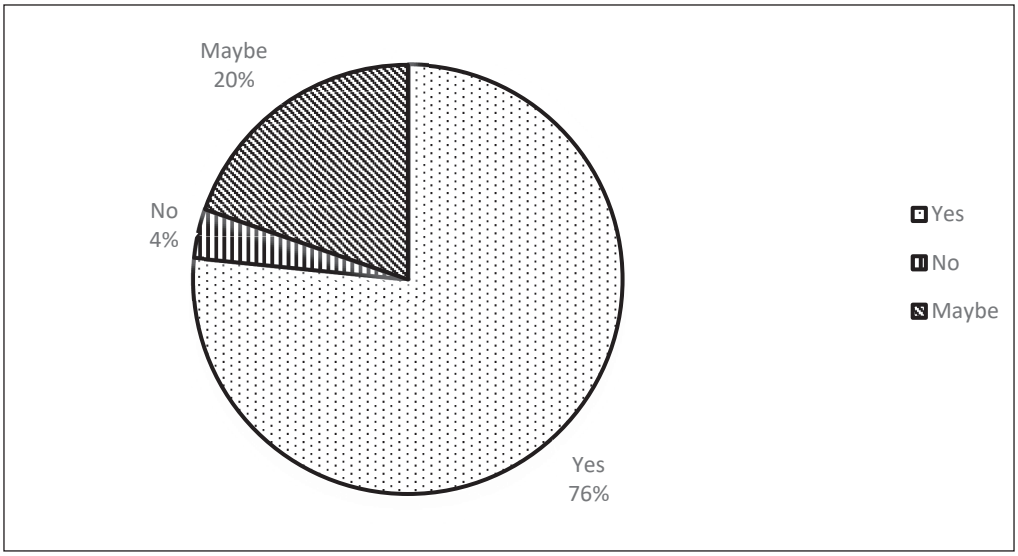
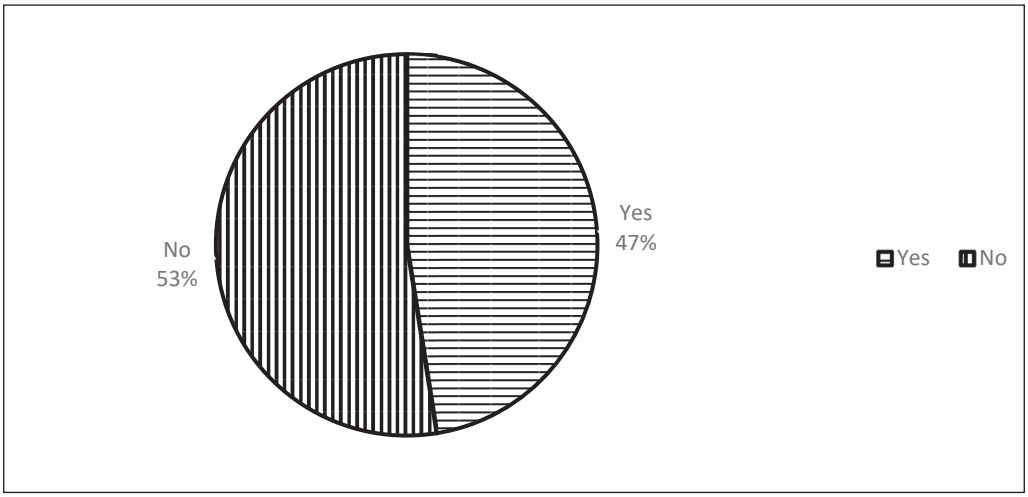


Figure 8: Respondents on Borrowing Again in Future



One of the most important objectives of this study is to assess the effectiveness of Mudra scheme. Has borrowing capacity of the respondents improved? Figure 7 explains the change in the borrowing capacity of the respondents. More than 75% of the respondents think that they have the capacity to bear the responsibility of another loan, i.e., they are interested in taking another loan after they repay their existing loan. Women have experienced an increase in their family income or loan repayment ability after obtaining the Mudra loan. On the other hand, around 20% of respondents, who took loan for buying assets, children's education, daughter's marriage, etc., are not sure about any change in their borrowing capacity after taking the Mudra loan. Only 4% said that they did not see any improvement in their borrowing capacity.

In addition, the respondents were inquired if they were interested in taking mudra loan again in the future. Figure 8 shows the response of all 300 women surveyed. 52.5% of the respondents said that they are interested in taking a loan again, while 47.5% of the respondents said that they might not need the loan in near future. However, the latter further added that if the need arises, they would be happy to take mudra loan again. Overall, a positive response is received regarding the Mudra loan scheme.

Summary and Conclusions

The above analysis provides a fair glimpse of the present scenario of women entrepreneurship, women empowerment and the role of the Mudra loan in promoting holistic growth and development of women. Maximum number of indebted women have opted for the Shishu product which disburses a maximum loan of Rs. 50,000. This indicates that women do not feel confident or prepared to invest a heavy amount into their venture and thus want to start with a smaller financial burden. It could also mean that the income they earn through their work is considered secondary while the primary responsibility of earning bread for the family remains with the male member of the family. Thus, less attention is given to the income-generating activities taken up by women. On analyzing further, it is discovered that the majority of them have either procured loan for consumption purposes or for setting up/expanding their own business or family business. Retail store, beauty parlour, boutique, playschool, tiffin services, tea stall, tuition centre, weekly markets, dental clinic, wellness centre, door-to-door supply services, etc. are some of the income-generating activities taken by these women using the loan amount.

It is found that easy availability of funding through Mudra Yojana along with huge market demand and prior experience has motivated women to engage in entrepreneurial activity. Not only setting up an enterprise but women have become the in-charge of their own business. Half of our respondents take business decisions on their own. Women do face challenges in their business in the form of huge market supply (competition), lack of easy financing options and inappropriate marketing strategies adopted to promote their business.

To analyze the role of Mudra Yojana in empowering women, responses of women on several parameters such as decision-making matters, autonomy level, consultation with spouse, etc. were recorded. The analysis highlighted that women have freedom to independently visit various places, but they cannot take decision on financial matters such as helping their relatives or setting aside money for themselves. Furthermore, a large portion of the respondents has said that they take decision on family matters (such as daily expenditure, children's education, medical treatment, etc.) in coordination with husband. They do not solely take decisions for their family. They consult with their husband regarding every household matter. There is only one matter on which women have complete discretion, i.e., voting. But, sadly, they are not actively tracking the political activities of the

country. They are not much aware of political campaigns, rallies, etc.

Limitation of the Study

The study includes data of female clients of Mudra Yojana residing specifically in the Delhi-NCR region. So, the type of entrepreneurial activity taken up by rural women using mudra loan could be quite different from the businesses taken up by urban women. Also, there are great chances that the level of women empowerment might vary from urban to rural area. Therefore, the results cannot be generalized for all the women of our country. Furthermore, the present study does not define any comprehensive index of empowerment. The data collected for the study is analyzed only through tables, graphs and pie-charts.

Scope for Future Research

To broaden the scope of our knowledge on this matter, data can be collected from different parts of the country and comparative analysis can be undertaken between rural and urban women in order to see the differences in their level of empowerment and entrepreneurial choices. Moreover, the present study has chosen various indicators of women empowerment from the existing literature but no index has been constructed. Another research could be undertaken with a defined comprehensive index of empowerment and results could be compared across various groups. Apart from this, a case study research can also be undertaken which would include the journey of women entrepreneurs from different regions of India to draw a comparison of their choices of business, role of the Mudra loan in their lives, challenges faced by them in procuring the Mudra loan and their empowerment levels.

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SOCIAL INCLUSION AND EXCLUSION: EAST-WEST DICHOTOMY

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Abstract: In a multi-religious and multi-cultural society like India, the roots of discrimination and alienation go deep and the question of social inclusion and exclusion becomes increasingly complex. In an authoritarian society, the problem of exclusion remains suppressed and does not generally surface till it reaches the boiling point. But a democratic society, being open to dissent, remains sensitive to the question of social exclusion. In Indian context, exclusion is witnessed in various forms and it is much interrelated. It revolves around social institutions and values that exclude, discriminate, isolate and deprive some groups on the basis of primordial identities. For example, caste is a unique determinant of social exclusion in the Indian sub-continent. Given this distinctiveness of Indian society from its western counterpart, the concept needs more deliberation and needs to reflect the realities of India in a more meaningful way. Social Exclusion in India is, in fact, an internalised phenomenon, the solution of which needs far deeper understanding of the concept and strategy beyond the policy of reservation. Until it happens, India's dream to emerge as a vibrant democracy with an impressive chronicle of inclusive growth will remain half-way.

Keywords: Social exclusion, Caste, Dalit, Sub-caste, Reservation

The World is full of suffering; it is also full of overcoming it
— Helen Keller

I. Introduction

It is often believed that the development of a nation is inversely proportional to the degree of social exclusion. So long 'exclusion' is understood within a limited framework, it is found to be true. But once the spectrum of understanding is widened and contextualized in a complex diverse situation, it may not always hold the same. Due to this, the problem of social exclusion pervades the parameter of economic development and constitutes features of both developed and developing nations. However, the nature of manifestation of the issue of exclusion is generally not uniform. It varies from system to system, society to society and state to state. For example, in a multi-cultural and democratic society like India, the roots of discrimination go deep and the question of social inclusion-and-exclusion becomes increasingly complex. It also resurfaces again and again and in

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various forms. In an authoritarian society, the problem of exclusion remains suppressed and does not generally surface till it reaches the boiling point. But a democratic society, being open to dissent and based on rights, remains sensitive to the question of social exclusion. Thus, the issue of ensuring social justice and building an inclusive society is a grave challenge to any democracy and India is no exception to that. This necessitates a deeper understanding of the concept of 'social exclusion' in context of the society in which it may erode the underlying unity and harmony.

II. Rationale of the Study

Social exclusion of one group or the other is a reality in any social context. But the inherent factor that precipitates alienation/exclusion varies from society to society. In the West, the term 'social exclusion' gained momentum due to perceived breakdown in social cohesion, growing unemployment and socio-economic inequalities. From France, it spread through the European Union's institutions, decentring the 'poverty' discourse to a large extent (Mathieson et al., 2008: 9). But such was not the case in many other societies in which the historical context of the evolution of the nation state was not the same with the West. This poses an obvious limitation in applying a concept developed in the industrialized nations of the West to the nation states of other geographical regions or India in which 'social exclusion' is an active phenomenon and has been brought about through deliberate policy (Borooah, 2010: 34). Thus, given its origins in particular context and rapid spread across nation states and global regions, it is perhaps inevitable that the phrase 'social exclusion' is used in numerous ways in different societies reflecting different institutional, political, historical and geographical contexts. In this backdrop, the present study intends to understand the concept and the dichotomy attached to it when applied in the context of the West and India.

III. Understanding Social Inclusion and Exclusion

The term "social exclusion" is of relatively recent origin. Rene Lenoir, who had been writing about such issues half a century ago in 1970s, is given credit of authorship of expression of this term (Opotow, 2014). *Les exclus* (the excluded) lacked the equality of rights with *les citoyens* (the citizens). Since then the concept figured prominently in the policy discourse in France in the mid-1970s. The concept was later adopted by the European Union in the late 1980s as a key concept in social policy and in many instances replaced the concept of poverty. This concept which had first appeared in Europe as a response to the crisis of the welfare state gained considerable currency over the last few decades and became an important policy issue in many of the states across the world. However, the problem remains that both the concepts of 'social inclusion' and 'social exclusion' lack universality in the way these have been defined and employed. While political analysts such as Ruth Levitas, G. Jehoel-Gijsbers and J. Cok Vrooman claim that social exclusion is more pervasive a term to refer to different disadvantaged groups within its fold, others think it as too vague and ambiguous and may mean different things to different people. Asland and Fløtten (2001) attribute the problem attached to the concept as arising out of the increasingly varied meaning put to it in France in which the concept originated. They wrote:

> *The concept is vague, and is employed to describe a multitude of situations and processes. The concept is loaded with economic, social, political and cultural connotations and there are few attempts at formal or governmental definitions. In fact, even social scientists seem reluctant to define the concept when discussing it and employing it in empirical analyses* (p. 1027).

René Lenoir, as Secrétaire d'Etat a l'Action Sociale of the French Government, spoke of the following categories as constituting the "excluded" (who were a tenth of the French population):

"mentally and physically handicapped, suicidal people, aged invalids, abused children, substance abusers, delinquents, single parents, multi-problem households, marginal, asocial persons, and other social 'misfits'" (Sen, 2000: 1). To this bulging list, Silver (1994: 541) adds the following of the areas in which the denial of access indicates signs of 'exclusion':

> *A livelihood; secure, permanent employment; earnings; property, credit, or land; housing; the minimal or prevailing consumption level; education, skills, and cultural capital; the benefits provided by the welfare state; citizenship and equality before the law; participation in the democratic process; public goods; the nation or the dominant race; the family and sociability; humane treatment, respect, personal fulfilment and understanding.*

Thus, there are many meanings that may be associated with the concept. Its definition widens and complicates further when applied to comprehend the scenario of 'exclusion' in various societies. For example, Asland and Fløtten made attempts to examine the role of 'ethnic identity' in the process of social exclusion. Since they considered 'exclusion' as a multidimensional phenomenon, they have chosen to operationalise it in broad sense and tried to ascertain how 'ethnicity' influences equality in citizenship rights, access to labour market, participation in civil society and other social arenas. Although 'ethnic identity' determines to a great extent the degree of exclusion, there are many intervening factors which also play important roles in the process of alienation of a section of the society. In the words of Asland and Fløtten (2001: 1046):

> *Even though there is a significant relationship between ethnicity and different forms of social exclusion, and the presence of cumulative exclusion, the most important variable to explain social exclusion seems to be education.....The strength of the relationship between income poverty and exclusion from different arenas seems to vary, however, and poverty does not seem to be a dominant variable in explaining either exclusion from civic/political participation or social isolation.*

However, this was an empirical study which was undertaken in context of ethnic minorities of two Baltic States of Latvia and Estonia with convenient size and population. Hence, the same may not replicate in developing societies with far larger and complex demography like India, Pakistan or Sri Lanka. In such countries, the possibility of exclusion of ethnic groups at margins becomes unavoidable.

The mechanism of exclusion is somewhat inbuilt in the societies in which 'ethnicity', 'caste', 'race', etc. have a political connotation depending on the demography of the respective country. "Differences in modes of subsistence are often co-terminus with ethnic difference and can operate as axes of exclusion. Just as in Indian context, Caste system exemplifies the model of exclusion, in Latin American and Sub Saharan Africa follows largely racial and ethnic lines" (Kabeer, 2009: 7). Such society, on the one hand, integrates groups hitherto ignored and at the same time pushes away certain groups to the corner. Electoral politics of developing democratic countries often exclude and assimilate simultaneously. Thus, social exclusion is a complex phenomenon and in the absence of a particular social science paradigm or theorization to guide what either inclusion or exclusion is, it encompasses many such social problems under the umbrella of 'social exclusion' which directly do not have bearing on it.

Lack of appropriate housing, sanitation, health care system, job opportunity or educational facility may eventually induce a sense of 'desertion' but none of these may be considered as central parameter of exclusion. Unless there is an inbuilt social or political mechanism to marginalize and discriminate a particular section of the society, it cannot be looked upon as 'exclusion'.

> *The multidimensional approach to exclusion is naively heuristic and tautological in that it identifies social problems and then labels them as aspects of exclusion.....Its lack of theoretical rigour, however, means that the absence of a strong ideological orientation allows a relatively open approach to identifying exclusion, even if its symptoms and conditions are not systematically understood* (O'Reilly, 2005: 81).

Amartya Sen notes that the importance of the idea of 'social exclusion' lies in emphasizing the role of relational features in the deprivation of capability and thus in the experience of poverty (Sen, 2000: 6). However, over time, the concept has been defined and redefined and an acceptable definition has been worked out.

Social exclusion, thus, generally refers to "the process through which individuals or groups are wholly or partially excluded from full participation in the society in which they live. Social exclusion is defined as the opposite of social integration, mirroring the perceived importance of being part of society, of being 'included'" (Haan, 1998: 26). The strength of the concept, according to Francis (2002), lies in the fact that unlike poverty, which primarily thinks in economic terms, social exclusion also takes into account deprivation in number of spheres, of which low income is just one. However, he states that there are three questions that are of vital importance in order to assess the concept of social exclusion (Francis, 2002: 75). First, how does it differ from that of poverty? Second, what does it add to our understanding of deprivation? Third, does it increase our capacity to address such social ills? The writings of Amartya Sen and the Conference on Chronic Poverty at the University of Manchester in 2003 have also focussed on similar aspects of the concept. Common to most of these writings is the emphasis that poverty is a multi-dimensional phenomenon and there are institutions and processes that are responsible for causing and reproducing poverty.

According to Silver (1994), interpretations of the concept of social exclusion have differed greatly, with perceptible variation in its conceptualisation and application. Silver distinguished three paradigms of social exclusion, depending on particular, on the ways social integration has been conceptualised. "Each provides an explanation of multiple forms of social disadvantage—economic, social, political and cultural—and thus encompasses theories of citizenship and racial-ethnic inequality as well as poverty and long term unemployment" (Silver, 1994: 539). Precisely what Silver discusses is that, in the 'solidarity paradigm', dominant in France, exclusion is the rupture of a social bond between the individual and the society that is mostly cultural and moral. It views society as something 'moral' in which solidarity often arises out of shared values. A 'specialization paradigm', dominant in the US and contested in the UK, views society as networks of voluntary exchanges. It is influenced by individual liberalism. According to the liberal individualistic theories, individuals are able to move across boundaries of social differentiation and economic division of labour, and emphasize the contractual exchange of rights and obligations. In this paradigm, exclusion reflects discrimination and the rise of group distinctions that denies individual's full access to or participation in the society. According to this paradigm, exclusion is a form of discrimination, which occurs when people are denied free movement and also denied individual freedom to participate in social exchanges.

A 'monopoly paradigm', influential in Britain, views the social order as coercive, imposed through hierarchical power relations. Exclusion is defined as a consequence of the formation of group monopolies, group distinctions and inequality. According to this paradigm, exclusion arises from the interplay of class, status and political power and serves the interest of the included perpetuating the domination and alienation of the excluded. Although Hillary Silver tries to locate exclusion in relation to the nature of the society, nevertheless such varied conception of the nature

of society entails devising of different means of inclusion in different societies. In this light, Jackson (1999) argues that the dualistic opposition between inclusion and exclusion tends to emphasize exclusion as the opposite of integration, which limits exploration of the contradictions within exclusion and the paradoxes of synchronized inclusion and exclusion. A case in point is illustrated when she argues that early liberal western feminists produced a universalizing theory of marginality, which tended to view the marginality of women as 'parallel' in its form to the marginalized of the colonized, the non-White, or the poor (Jackson, 1999: 130) which ultimately failed to take into account the division between women, and the fact that gender determined social relations across and within groups.

Thus, a cursory review of the concept of social exclusion brings to the fore a mixed sense of understanding. However, despite having wide variations in meaning, the conception of 'exclusion' has gained wide currency and constitutes a matter of serious concern in present day social science discourse and in policy formulation. The dream of an inclusive society is all about understanding the nature and meaning of social exclusion in a society. The meaning of social inclusion is thus less problematized and implicit. It has not been defined in its own right. It is seen to be defined in relation to social exclusion. It, therefore, remains the case that in majority of the exclusion literature the nature and meaning of social inclusion is merely implied or asserted. Thus, what constitutes inclusion automatically entails the question of exclusion and the nature associated with it.

Inclusion—be it a small-scale project or a national level endeavour—requires mutual recognition. People must feel that they are legitimately involved in the socio-political process of a society. The sociologist Norbert Elias called such mutual recognition a matter of "social honour" (cited in Sennett, 1999). The public sphere of a pluralist society has to be made more conducive to the expression of cultural diversity to ensure "social honour" between groups. While democracy has led to the inclusion of many previously excluded groups in the political process, the problem of deep-rooted socio-cultural separation still continues to be a crucial challenge in a country like India or for that matter to many of the post-colonial countries. Communal clashes, ethnic riots, identity movements, political secessionist actions and extremist violence are nothing but the manifestations of deeply embedded nature of exclusion in such societies.

IV. East-West Dichotomy

In the West, the concept of 'social exclusion' is mainly a phenomenon originating from poverty, income or moral estrangement that may happen between an individual/group and the society. In the western context, racism is also an important yardstick of segregation in social life. Yet the debate around the term did not specifically take cognizance of the implications of racism. Irrational prejudice of racism changes with time and with the economic-political and socio-cultural conditions in which it functions. Consequently, it has to be studied in its specific historical and social context. In his book titled *Racism*, Miles (1989) points to the complexity of the process by which racism is ideologically reproduced. Ideologies are not uncritically reproduced, but people construct and reconstruct them according to their material and cultural conditions in order to better understand these conditions. Racism is "practically adequate", Miles (1989: 80) argues. This aspect of racism means that the content of racism varies according to class positions (Valk, 2003).

In case of the East, this is not wholly the same. The genesis of 'social exclusion' in many cases is inbuilt in the very social architecture. As a result, the Euro-centric approach and its labour market framework are not always helpful in comprehending the problem. For example, the exclusion discourse in India has to be understood against its multi-cultural, multi-religious and multi-ethnic

background in which primordial identities like caste, religion and also gender had played dominant roles in perpetrating exclusion. "An altogether different type of exclusion society is a caste system, which relies less on geographical separation and more on social distance.....At the root of India's exclusion society are the untouchable castes whose marginal social position is owed to their relationship to impurities associated with death and organic pollution" (Allman, 2013: 2). Such paradigm is not central in the West which had been mono-religious and mono-cultural for centuries. Although the terms "multiculturalism" and "pluralism" are coined by western writers and dealt upon extensively by authors Will Kymlica, Jonathon Sacks, Anne Philips, Bryan Barry and so on, the experience of such social set-ups was missing in the western societies.

It is only in the post-colonial era when large number of workers from the erstwhile colonies began to migrate to metropolitan countries, a multi-cultural social fabric emerged in the West. "The massive inward migration of formerly colonized peoples now made the major cities of Britain, France, Portugal, Begium and Netherlands much more ethnically diverse" (Buettner, 2018: 1). Although the racial prejudice against the offspring of the migrants is considered as a strong barrier to integration in the western societies also, it does not, however, constitute the central idea in the western discourse of social justice understood broadly as redistributionist discourse (RED), social integrationist discourse (SID) and moral underclass discourse (MUD). The first as mentioned as redistributive discourse sees social exclusion as consequence of poverty, while the social integrationist discourse perceives paid work as the primary or sole legitimate means of integrating individuals of working age in the society. Much of the rhetoric and the policy of the government in Britain after 1997 election were rooted in this very different understanding of social exclusion, in which the key element is labour force attachment. A close analysis of government documents and key speeches of PM Tony Blair reveal the emergence of number of dominant constructions that equate 'exclusion' to poverty, unemployment, low aspirations, 'immoral' approach to personal behaviour and lack of basic literacy. In his speech 'Bringing Britain Together' in December, 1997, Tony Blair claims that social exclusion is about income (Williams, 2009: 12-13).

The third approach is a moral underclass discourse (MUD), which emphasizes moral and cultural causes of poverty and its effect in social estrangement. In Britain, therefore, the 'Social Exclusion Unit' set up by Prime Minister Tony Blair in 1997 was primarily concerned with 'problem groups' such as rough sleepers, truants, unmarried mothers, suicidal youths and so on (Levitas, 2003: 3). None of this paradigms comprehends the nature of exclusion in our society. The exclusion in India is predominantly a social phenomenon which evolved along with the society. As a result, caste, the most dominant institution of the Hindu society, synchronized the dimension of exclusion in India. What is interesting to note in this regard is that instead of reducing access, the caste institution allowed the greater mass of the society an 'unwanted inclusion' which, in terms of Amartya Sen, as worse as 'unfavourable exclusion' (Sen, 2000). Such a nature of inclusion restricted the access of the larger section of the society to various social rights and privileges.

Social exclusion is, therefore, primarily related to lack of access to opportunities offered by the society. It also restricted access to and utilization of resources. Therefore, in India, the problem is not really of including the 'excluded' but of reducing the 'gap' between different groups enjoying social privileges disproportionately. This is indeed a difficult task as it necessitates the abolition of the caste system in general. Until it happens, a chain of reactions would continue and the entry of one sub-caste in the mainstream would lead to the exit of the other. Here, excluded are those who suffered discrimination perennially. They are generally subsumed under the Scheduled Caste and Scheduled Tribe categories, the lower strata of Hindus. Their integration needs not only some

piecemeal measures but also some sort of re-ordering of our traditional social structure. Until, the constitution came into force in 1950, exclusion was enforced primarily by the traditional caste-based social order. The practice was *legally* abolished in 1950 with the introduction of India's constitution, though it still persists to exclude groups socially.

V. Caste Hierarchy and Social Exclusion in India

Thus, caste, India's traditional system of social ordering and control, continues to remain the most exhaustive means to sustain social exclusion in post-independent India. According to Chatterjee (1997: 94):

> *If there was one social institution that, to the colonial mind, centrally and essentially characterized Indian society as radically different from Western society, it was the institution of caste. All arguments about the rule of colonial difference, and hence about the inherent incapacity of Indian society to acquire the virtues of modernity and nationhood, tended to converge upon this supposedly unique Indian institution.*

Caste hierarchy in India has two different dimensions: one is inter-caste hierarchy and the other intra-caste hierarchy. Inter-caste hierarchy generally refers to the broad differentiation of various social segments within the Hindu society in which the interaction among the members was restricted conventionally by the concept of 'purity'. At the top of the ladder is Brahmin, or priest, followed by Kshatriya, or warrior. The Vaishya, i.e. the farmer and the artisan, constitutes the third category. At the bottom is the Shudra, the class responsible for serving the three higher groups. It was, in fact, a pyramid-type social structure in which the so called 'lower caste' people are forcibly kept at the bottom of the pyramid, destined to engage in menial professions and forced to serve the castes above in the chain of command. The custom of endogamy was strictly imposed to prevent fusion or change in the caste character or order. According to Dr. B.R. Ambedkar:

> *the Caste system has two aspects. In one of its aspects, it divides men into separate communities. In its second aspect, it places these communities in a graded order, one above the other in social status. Each caste takes its pride and its consolation in the fact that in the scale of castes it is above some other caste. As an outward mark of this gradation, there is also a gradation of social and religious rights technically spoken of an* Ashta-dhikaras *and* Sanskaras. *The higher the grade of a caste, the greater is the number of these rights and the lower the grade, the lesser their number. Now this gradation, this scaling of castes, makes it impossible to organise a common front against the Caste System. If a caste claims the right to inter-dine and inter-marry with another caste placed above it, it is frozen, instantly it is told by mischief-mongers, and there are many Brahmins amongst such mischief-mongers, that it will have to concede inter-dining and inter-marriage with castes below it. All are slaves of the Caste System. But all the slaves are not equal in status* (cited in Moon, 2014: 104).

Such a caste order with its fundamental characteristic of fixed civil, cultural, religious and economic rights obviously led to 'forced exclusion' of different groups in the society. A large segment of population of the Hindu religion was designated as lower castes and was bestowed with minimal socio-cultural rights and limited economic freedoms. Caste meant "a small and named group of persons characterized by endogamy, hereditary membership and a specific style of life which sometimes includes the pursuit by tradition of a particular occupation and is usually associated with a more or less distinct ritual status in a hierarchical system" (Beteille, 1996: 46). But this birth-based caste inequity and its exclusivist character has faced multiple challenges. In Beteille's own terms: "Rapid economic growth and the expansion of the middle class are accompanied by

new opportunities for individual mobility which further loosens the association between caste and occupation" (see Omvedt, 2012). Although such an assertion of Beteille or his attempt to portray 'caste' as a mere consciousness, fuelled by people engaged in politics or media, is seriously contested by author like Gail Omvedt, there is perceptible evidence to suggest the challenges that the institution of 'caste' faced from time to time. "The first challenge emerged as a result of the interaction between the Indian tradition and Islam in the medieval period. In the form of Bhakti movement, the plausibility of questioning the power of the upper castes within the framework of Hindu ideology of dharma/karma was realised. A large number of saints such as Chokamela, Nam Dev, Kabir, Ravidas, Nanka, to name a few, questioned the legitimacy of keeping the untouchable castes excluded from the right to worship in temples" (Judge, 2012: 266).

The arrival of the British in India broke the occupational structure in a fundamental way. The major impact of the British rule was visible in economic development. New jobs were created which were not essentially linked to castes. Intensification of leather trade, as noted by Briggs (1975), in the nineteenth century improved the economic conditions of 'chamars'. Hence, the occupational immobility arising out of caste identity slowly started losing its ground, although it was not enough to make a dent on the 'institutionalized caste hierarchy' of India. The occupational immobility of over a long period led to the concentration of all major assets of production to the hands of the upper castes Hindu. Such unfair distribution of national wealth forced depressed classes to depend for their survival on upper castes persistently. Till the end of the colonial rule, caste, therefore, was the dominant institution to ensure and perpetrate the phenomenon of 'exclusion' in our society.

The dawn of independence, however, witnessed the endeavour to bring in an egalitarian social order which is bereft of caste discrimination. The constitution of independent India was designed to secure to all its citizens justice—social, economic and political. The constitution also states that "the state shall not discriminate between one citizen and another merely on grounds of religion, race, caste, sex or place of birth.....the constitution includes a prohibition of 'untouchability' in any form and lays down that no citizen may be deprived of access to any public place, of the enjoyment of any public amenity or privilege, only on the ground of religion, race, caste, sex or place of birth" (Basu, 2013: 41-42). The Directive Principles add that the state shall promote with special care the educational and economic interest of the Scheduled Castes/Tribes and shall protect them from social injustice and all forms of discrimination. However, such clear-cut constitutional guidelines accompanied by the policy of reservation failed to make a serious dent on caste syndrome in India's socio-political scenario. One of the reasons for that may be constitutional provisions and measures were not adequate to comprehend the intricacies of caste system in India.

Caste in Indian society is the most important yardstick of individual identity. It is the most important determinant to locate the social background of an individual. Caste is not just a social phenomenon but also a strong psychological issue that shapes the mindset of majority of Indians. Besides, caste hierarchy in India does not only operate between castes; it operates within a particular caste also. As a result, the benefits of any affirmative action are appropriated by the dominant 'sub caste' within a caste. This is the reason that the policy of reservation is considered to be a failure to ensure homogeneity within a caste. The policy no doubt succeeded to bring a section of backward caste people to the mainstream of life, but on the whole it did not work well to obliterate the caste system in India. "One can say with reasonable confidence, based on the record of any such lop-sided developmental process, that reservations have created more inequality within every so-called beneficiary caste than it did between the latter and other castes" (Teltumbde, 2009: 17).

One important reason for that lies in the fact that under the policy of reservation, a caste group is considered as a cohesive mass which it is actually not. But the policy lacks the inherent mechanism to do away with the existing inequality among various sub-castes within a caste group.

What further complicates the process of homogenization is the intrinsic tendency of various caste groups to follow the path of what the renowned sociologist M.N. Srinivas calls 'sanskritization'. It is a unique feature of the caste system that even its victim forgets his/her own victimhood and assumes the high-caste oppressor's posture as and when the opportunity arises. It is even forgotten that it is basically the anti-reservationist argument that they are repeating. The example of Mahars in Maharashtra, Malas in Andhra Pradesh, Jatavas in Uttar Pradesh, the Palars in Tamil Nadu and Holeyas in Karnataka may be cited in this regard. The same sense of superiority that dominates the upper caste psyche becomes instrumental in case of a lower caste that has moved to a favourable position in the hierarchy. As a result, discrimination and social segregation of castes persist and often cause endemic inequality within a single caste.

The explanation of social exclusion in India cannot, therefore, be thought as atypical behaviour on the part of few individuals or mere restrictions from certain social privileges. Instead, it was an institutionalised form of expulsion in which the society itself denies to extend economic resources and social recognition to certain groups without which they cannot participate fully in the collective life of the community. "The mobility processes that occur in the Western world often effect real changes since the assimilative propensities tend to be strong due to the absence of bias in recognising the newly earned privileges of the historically subjugated groups. In India, however, the inbuilt caste prejudices and biases tend to devalue and degrade the achievements of the lower segments of the society leading to the loss of their integration and forced segregation. Under such circumstances, any process of mobility attempted through the given framework, at least from the viewpoint of the lower and the backward castes turns out to be more futile than successful" (Yadav, 2016: 12). While there is considerable variation in the actual configuration of castes across the region, and in the rigidity with which the rules of castes are observed, it is a reality that 'caste exclusion' is a fixed phenomenon in Indian society. According to Thorat (2008: 169):

> *The fundamental characteristics of pre-determined and fixed social and economic rights for each caste, with restrictions for change, implies the 'forced exclusion' of one caste from the civil, economic, and educational rights of the other castes. Exclusion in civil, educational and economic spheres is, thus, internal to the system and a necessary outcome of its governing principles. In the market economy framework, occupational immobility would operate through restrictions in various markets such as land, labour, capital, credit, other inputs, and the services necessary for pursuing any business or educational activity.*

So, the concept of 'social exclusion' in India is intrinsically connected with the institution of caste. Unlike its Western counterpart, here the question is not just of 'inequality' but more profoundly about 'graded inequality' which implies an institutionalized position for groups belonging to different castes. Therefore, in Indian context 'social exclusion' needs a group specific approach with an apt mechanism to examine the impact of the policies from time to time.

VI. India's Challenge

Exclusion, in India, is thus an internalized phenomenon and it is much interrelated. It revolves around the social institutions and values that exclude, discriminate, isolate and deprive some groups on the basis of primordial identities like caste, religion, gender and ethnicity. The roots of discrimination go deep and both social and economic disparities are deeply intertwined in increasingly complex

ways in .the process of exclusion. However, the major source of exclusion has always been the caste system. Thus, mere integration of the 'excluded' to the economy and allowing them access to resources would not end the sense of alienation of an outcaste in India so long the institution of caste continues to devalue his/her identity. This is not the case in the West. In the West, the problem is more about 'what you have' instead of 'who you are' (Ziyauddin and Eswarappa, 2009: 4). Louis Dumont, a celebrated name in the fields of Sociology and Anthropology, states that the sociological and ideological components of Indian civilization are in a binary opposition to that of the West—modern against traditional, holism against individualism, hierarchy against equality, status against power, etc. (Sociology Guide, undated). Thus, given the diversities in India with its unique socio-cultural and historical realities, the concept needs more deliberation and needs to reflect the realities of India in a more meaningful way. It also necessitates discussion on the 'politicization' of the concept of 'exclusion'.

Over last seventy years, Indian democracy has thrived on and exploited various primordial identities to political benefits. Untouchability has been abolished and all the characteristics of a modern democratic society have been incorporated in our constitution with a view to ensure social justice and to eradicate the hierarchical structure of our society. But an adequate assessment of the impact of a modern political structure with its various affirmative policies was not done objectively. The policy of reservation was introduced and strengthened but without any proper assessment of the impact of the policy on our social structure. As a result, the concept of 'exclusion' has gained a kind of 'constancy'. More or less, the same groups of people continue to suffer exclusion with the periodic entry of newcomers. Caste continues to play the determining role in shaping our politics and the assertion of various caste groups in the political process has failed to bring in any substantial change in the integration and inclusion of various castes in the mainstream of life. Instead, the nature of exclusion still corroborates to the semi-feudal structure of our society which is different from a western social set up in fundamental terms. Thus, a western understanding of 'exclusion' is not enough to address the problem in Indian context. Unlike West, exclusion is not either economic or external. None of the excluded group — be it Dalit, tribal, Buddhists, Christians or Muslims — is a migrant to the land whose alienation to the mainstream can be, to an extent, natural. Thus, exclusion in India is more of a social phenomenon, the solution of which needs far more affirmative action and strategy beyond the policy of reservation.

VII. Conclusion

In post-independent India, enormous constitutional provisions, legislative enactments and educational programmes have been adopted to protect and integrate the marginalized sections to the mainstream of life. The ambit of the policy of reservation is expanded to include more and more groups. But a western approach to deal with the matter did not succeed well beyond a limit to dilute the caste structure of the Indian society. Discrimination persists and often serves as a tool to gain political mileage in an inequitable democratic set up. What is interesting to take note of is that caste system is also fast changing its character under the influence of our democratic polity. Caste today is seldom identified with the characteristics of 'purity', 'sanctity', 'unique life style' and so on. Instead, it has become a potent force to gain political mileage and economic benefit in our democracy. This is the reason today every conceivable social group including the traditional upper caste has a standing demand for reservation. The main reason for the persistence of social oppression based on caste stratification is the inadequacy of the ruling classes, during the freedom struggle, in addressing themselves to this issue. The sinful heritage of caste oppression was something that the national anti-colonial struggle could not repudiate because the leadership

of the freedom struggle was not interested in going to the root of the problem. In certain ways, they might have lacked the courage to seize it by the roots. In post independent India, caste system was reinforced for electoral dividends and today it is the most convenient tool to garner untenable benefit. Instead of guaranteeing equality, irrespective of caste, the electoral system itself nurtured the perpetuation of caste consciousness in terms of choice of candidates, making propaganda and the appeal to the electorate.

Eventually, what is seen is the emergence of an extreme caste consciousness within the parameters of the concerned caste. This is divisive and detrimental to the unity of a democratic society. What is thus required is the creation of space in democracy for far more ventilation of dissent of different alienated groups. It is also important to assess the impact of various policies in limiting exclusion. Deprivation of various discriminated groups is also not uniform which warrants group-specific action. Reservation policy needs to be revised and replaced with an alternative policy that gives equal opportunity to deprived sections and yet does not turn to be a ballot mate. India's model of an inclusive society must bear the realities of India's society instead of a western one. There was reason to believe that the growth of market and the rapid rise of middle class will lead to a spontaneous erosion of the caste system. But caste continues to haunt Indian Society and its rich diversity, although in a new look.

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ALCOHOL CONSUMPTION AND ITS PROHIBITION IN INDIA: A COMPREHENSIVE REVIEW

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Abstract: This paper intends to provide a brief review of literature on alcohol consumption and prohibition, emphasising the historical retrospect of India. The literature study suggests that the most rational means to reduce alcohol consumption is education, inculcating moral values and the spiritual progress of an individual and society as a whole. The benefits of no drinking over moderate drinking purely from a health perspective do not fully justify the prohibition as a policy. Indian experience over the long-run suggests illegal liquor is more likely to get back in the prohibited area, creating a parallel economy. From the government perspective, pricing and taxation can show positive benefits.

Keywords*:* Alcohol consumption, Addiction, Prohibition, Religion, Education, Spirituality, Policy.

1. Introduction

History suggests that the policy of prohibition of alcohol consumption was fiercely debated worldwide—for example, in the USA in the early 20th century. Proponents of the ban believe it to be the best possible method to resolve the alcohol menace. One of its strongest supporters, Prof. Irving Fisher, even organised a round table discussion on alcohol prohibition in the year 1927 and claimed that not even a single economist had doubted prohibition (Fisher, 1927). In India, it was Mahatma Gandhi—and, earlier, G.K. Gokhale and Lokmanya B.G. Tilak—who gathered momentum against alcohol problems in the country (Chand, 1972). According to Gandhi, one thing most deplorable next to untouchability was the drink curse. Gandhi believed that prohibition would strengthen the Indian independence movement and safeguard Indians from moral deterioration (Fahey and Manian, 2005). It was the effort of Gandhi and the belief of the Indian National Congress that alcohol prohibition got enshrined in the directive principles of state policy of the constitution of India in the year 1950.

Since then, several states in India have tried to prohibit alcohol consumption following Article 47 of the Indian Constitution. The Planning Commission (Government of India) set up a Prohibition Enquiry Committee in 1954 and then in 1964 to understand the working of prohibition in India

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and developed a national programme to fulfil the directive principle of the Indian Constitution with comprehensive public support. Despite the hiatus mentioned over illicit liquor and several objections raised over implementing the said objective, both the committee favoured prohibition. They held the Gandhian belief that the only country where prohibition can be successful is "India". The rationale stated was alcohol consumption is not respectable in India and is limited to only a few classes. Since independence, several states tried alcohol prohibition; however, they eventually had to repeal it, citing financial losses and impractical implementation.

In recent times the idea of prohibition does not appear to be the most suitable method to resolve the problem of alcohol consumption in developed countries.[1] Research by Thornton (1991) even suggested that prohibition policy in the USA (1920-1933) was a complete failure (Thornton, 1991).[2] However, the policy debate in India appears to be far from over. Alcohol consumption continues to remain prohibited in Gujarat, Mizoram (till 2014), Nagaland, the union territory of Lakshadweep and in some districts of Manipur, Meghalaya and Maharashtra. On the 26th of November 2015, Bihar chief minister announced a total ban on the sale and consumption of alcohol as an electoral promise. Soon after he came to power, the prohibition law was brought into force on the 5th of April 2016.

Similarly, the Bharatiya Janata Party (BJP) government in Maharashtra state banned alcohol consumption in the Chandrapur district on the 1st of April 2015. The prohibition remained in force till May 2021 and got repealed when Maha Vikas Aghadi (MVA) government came to power. States like Madhya Pradesh and Kerala have been exploring the possibilities of statewide alcohol prohibition. Chief Minister of Andhra Pradesh also had cleared his intent to fulfil his poll promise on alcohol prohibition. Over this premise of continuing debate, this paper tries to overcome a critical research gap by considering the prohibition experience in India based on exhaustive literature and collaborating it with several dimensions of alcohol research. This paper is arranged in the following manner. Section 2 briefly discusses the debate on alcohol consumption. This debate focuses on the harmful effects, moderate consumption, and pleasure aspects of alcohol consumption. Section 3 provides a brief historical review of alcohol consumption in the Indian context. The essence of such review is worth noting for any policy consideration. Also, the policies during colonial India are significant as it marks the transition into the present era. Section 4 reviews some essential studies on prohibition of alcohol consumption in India. Section 5 concludes this paper.

2. Debate on Alcohol Consumption

Alcohol consumption is a highly debatable matter. Several studies show the harmful effects of alcohol consumption (WHO, 2018), yet, some studies show the positive influence of alcohol when taken in moderate quantity (0.22-0.99 oz of ethanol per day) (e.g., Criqui and Ringel, 1994). Some studies even suggest the pleasure side of alcohol consumption and its positive effect on health (Cahalan, 1970). Some cultures favour alcohol consumption in moderate quantities, whereas several

[1] Temperance and Prohibition Policy experimented in several countries like the USA, Finland, Iceland, Norway, Denmark, Britain, Turkey, Russia/USSR, Canada. Presently, alcohol is prohibited mostly countries with a Muslim majority.

[2] Similar to the studies of Fisher (1927) and Warburton (1999), Thornton (1991) showed the fall in consumption of alcohol at the beginning, which subsequently increased. However, the fall coincided with the production of a more potent form of alcoholic beverage and spirits. The prohibition led to an increase in crime and homicide rate. The corruption of public officials was widespread. Prohibition led to increased government spending along with the loss of a significant source of tax revenue. No significant improvements in productivity and absenteeism were observed.

religious prescriptions speak contrary to alcohol consumption. These contradictions create multiple complications on efficient regulation in terms of government policy. Henceforth we first take a brief look at several findings from the alcohol consumption perspective.

On the harmful side, alcohol is recognised as a significant risk factor. According to the WHO (2018), mortality due to alcohol consumption is higher than mortality due to diabetes, tuberculosis and HIV/AIDS (2016). The report also suggested alcohol consumption has led to nearly 3 million deaths worldwide. In terms of disability-adjusted life years (DALYs), harmful alcohol use accounted for 132.6 million DALYs worldwide. Moreover, it is essential to note that the alcohol-attributable disease burden was higher in low-income and middle-income countries (WHO, 2018). Alcohol intoxication is also considered one of the most potent factors for behavioural emergencies causing severe risk of injuries to—or, death of—self and/or others.

However, Criqui and Ringel (1994) concluded wine ethanol to be inversely related to Coronary Heart Disease (CHD), and light to moderate consumption may improve longevity. Doll (1997) measured the beneficial effect of alcohol, suggesting that consumption of small and moderate quantity of alcohol reduces mortality from vascular disease by about one-third. According to Power et al. (1998), the younger population shows improved health and a lower incidence of chronic illness. Poikolainen (1998) concluded that moderate drinkers show lower mortality than abstainers, and heavy drinkers show higher mortality. Baum-Baicker (1985) showed that the psychological benefits of moderate drinking include reducing stress, increasing happiness, conviviality, pleasant and carefree feelings, improvement in problem-solving and short-term memory, lower rate of clinical depression, and geropsychiatric treatment. Several other studies, including the American Cancer Society, also support moderate drinking, with the lowest risk of drinking, i.e., one drink per day.

To add to these findings, the dimension of pleasure enriches the topic. Cahalan (1970) found that pleasure was the most common motivation to drink. Warburton (1999) suggests that "pleasure is beneficial for health and enhances immunological resistance to disease". Survey research in several countries further establishes the general perception of drinking as positive, mood-elevating, relaxing and something that includes sociability and well-being. Adding to the literature of pleasure and moderate consumption, Peele and Brodsky (2000) suggested that the over-emphasis on harms associated with alcohol consumption and neglect of the benefits of moderate consumption need to be corrected to build a fully elaborated model of the effects of alcohol. However, a recent study on alcohol suggested that zero alcohol consumption levels (0 gm of ethanol per week) improves health (Burton and Sheron, 2018). The study finds the protective effects of alcohol on ischemic heart disease and diabetes among women, but it is offset by the risk of cancer, injuries and communicable diseases.

In conclusion, alcohol consumption, even from a health perspective, has its contradictions. From a policy perspective, several more dimensions of alcohol consumption and policy need to be examined before developing a plausible and effective prescription. The recent study by Burton and Sheron (2018) appears to have resolved the question of consumption (as long as new developments do not challenge the findings) from a health perspective. The policy consideration in relation to prohibition requires inquiries on several more dimensions such as culture, religion, class, caste, federal structure, revenue, corruption, etc. In the next section, we examine how alcohol consumption has shaped up in India over time.

3. History of Temperance and Prohibition Policy in India

According to Hassan (1922), the Vedic era cherished alcoholic beverages. The post-Vedic period

tried to reduce its consumption allowing alcohol to be used for specific purposes. In the Mauryan empire during the Buddhist era, various administration policies were brought in force along with the propagation of Buddha teachings, which led to moral and cultural change amongst the masses against the consumption of alcohol. In medieval India, consumption was restricted among the kings and the courts. In the colonial era, British administration policies fostered the consumption of alcohol in order to extract revenue (excise) (Hassan, 1922). After independence, several states imposed alcohol prohibition but then had to repeal it over time. However, it was only the state of Gujarat where prohibition sustained since independence, although its success remains debatable.

3.1 Ancient India

Intoxicants have been a part of Indian culture for a long time; thus, India is considered the ancient home of distillation (Allchin, 1979). It is worth noting that alcohol consumption in India was not abhorred by all the members of the higher caste Hindus even during the colonial period. The references in Vedas has been used as the rationality for alcohol consumption. To cite a reference, the excise committee reported for the district of Moradabad as follows: "…I am informed by persons in this district that Banias and Kayesths do not regard the use of intoxicants, more especially the drinking of liquor or spirits, as forbidden by their religion…And from the not infrequent references to the "*soma juice*" (the then intoxicant) in the *Vedas,* it is to be presumed that even the Brahmans could find a sanction in the foundations of their religion for the drinking of intoxicants…" (Government of India, 1914).

To elucidate this, it must be noted that liquor *Soma* is praised in the various hymns of Rigveda.[3] God and liquor came to be closely identified in one symbol, and liquor was associated with deities' worship. Such was the praise for *Soma* that it was considered to be "…gifted with such properties that even God may have envied…" (Hassan, 1922). To add more light on *Soma*, Prof. Ragozin details the process and consumption in the Vedic era as follows:

> *…The fluid is then mixed with sweet milk and sour milk or curds with wheaten and other flour and brought into a state of fermentation; it is then offered thrice a day and partaken of by the Brahmans…It was unquestionably the greatest and holiest offering of ancient Indian worship... The gods drink the offered beverage; they long for it; they are nourished by it and thrown into a joyous intoxication…* (Ragozin, 1895).

Apart from Soma, the other intoxicating drink commonly consumed by poorer classes was *Sura*.[4] Although Aryans celebrated drinking with much zeal and enthusiasm, the later period suggests: "…Vedas considered wine is unfit to be drunk, unfit to be given, unfit to be accepted…" (Hassan, 1922).

Considering that drink is an evil that needs to be rooted out, Manu (author of *Masnu-smriti*, Sanskrit law codes) vehemently opposed the consumption of drinks. He considered drinking the most harmful of the king's vices; and thus drinking was a mortal sin for the Brahman. The rules were set not only for prevention but even for punishment; as a Brahman, if he indulges in the drinks, he was to be "excluded from all fellowship at meals, excluded from all sacrifices, excluded from instruction and matrimonial alliances; excluded from all religious duties". For women who drink, rules were as follows: "no libations to be performed at her death", "in the next birth she would descend into the body of a jackal or some equally low animal or would be born in the hell" (Chand,

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[3] *Soma* is identified with a plant of the family of milkweeds—"Asclepias acida" or "Sarcostemma viminale" (Ragozin, 1895).

[4] *Sura* is identified with "country spirits" (Hassan, 1922).

1972). The other legislators who strongly condemned drinking were Apastamba, Gautama and the Institutes of Vishnu. Apastamba dictates the punishment of death by drinking hot liquor. Gautama states the possibility of purification for a brahman only after his death, whereas Institutes of Vishnu declare even the smelling of spirituous liquors a crime. Although there has been an attempt by early legislators, including Manu, to drive out this evil from society, drink always made its existence visible (Hassan, 1922)

It is understood from the ancient scriptures that mere regulation is not enough to overcome the vice. The behavioural aspects of the people are difficult to change by enforcing stringent religious laws or punishment. It requires a moral and social awakening among every individual of the society. The major success in this direction can be observed since the influence of Buddhism over Indian society. According to Hassan (1922), "[i]f today it is abhorrent to a Hindu to eat flesh, let him remember it is a result of Buddha's teaching; if it is obnoxious for him to drink wine, let him again remember that Buddha still exerts his purifying influence…". To understand this success, one needs to fathom the fundamentals of Buddha's teachings, elaborated in the following sub-section.

3.2 The Influence of Buddhism

Buddha's teachings have two aspects *Pariyatti* (theory) and *Patipatti* (practice).[5] As far as *Pariyatti* is concerned, injunctions are available in *Jatakas* (stories of Buddha's previous birth leading to the fulfilment of *Paramitas*—qualities to attain Buddhahood), eightfold Noble Path and the five major *Sila* (morality). *Patipatti* is known to be practising the insight meditation based on *Sila*, *Samadhi* (right that concentration), and *Pragya* (wisdom of *Annata*—impermanence) (Hart, 2012). Literature suggests that *Patipatti* is synonymous with insight meditation— i.e., *Vipassana* (observing in a specific way)—having a "know thy self" approach.

The essence of Buddha's teaching does not lie on punishment but much on understanding the true nature of the cause of suffering, knowing thy self and developing the wisdom. Buddhism does not consider alcohol addiction or addiction in general as a biological disease; instead, it considers it as a disease of the mind. Thus the solution lies in understanding the true nature of craving that arises in the mind of an individual rather than external solutions. According to Buddhism, addiction is an addiction to a certain type of vibration/pleasure-feeling, which is a result of a chemical process induced by addictive goods. The mind craves these vibrations as the addiction reaches the deep unconscious level. *Vipassana* reaches the unconscious level of the mind by working with the sensations, and thus it removes the roots of addiction (Scholz, 2010).

Modern research on addiction and alcohol justifies the benefit of *Vipassana* (insight meditation). In contradiction to moral or disease models of addiction, Buddhism provides an alternative to overcome one's ignorance of false refuge and come out of the grasps of craving and attachment (Marlatt, 2002). A study that compared the effect of meditation found that meditation showed the most consistent and reliable reductions in drinking (Marlatt et al., 2017). Another study found that meditation was associated with significant drops in daily alcohol consumption (Murphy et al., 1986). Recent studies have found that meditation can treat panic attacks and anxiety disorder, depression and depression relapse, each one of which is directly related to alcohol consumption. *Vipassana* has proven to reduce impulsiveness (Emavardhana and Tori, 1997). Neurobiological and

[5] The Buddhist literature (*Tiratana Vandana*) states the importance of following the *Dhamma* (*Patipatti+Pariyatti*) in Pali as: *svākhāto bhagavatā dhammo sanditthiko akāliko ehipassiko opanayiko paccattam veditabbo viññūhī ti* (Well proclaimed is the Law/*Dhamma*/*Dharma* by the blessed one; visible in this world; immediate; invites everybody to come and see; leads to a goal; and is to be understood individually by the wise ones).

psycho-physiological studies further demonstrated the effectiveness of meditation.[6] The American Addiction Centres (AAC) also mentions that *Vipassana* (insight meditation) helps reduce "stress", a significant reason for alcohol consumption.[7]

Considering this, it was observed that during the reign of Chandragupta Maurya, drinking was significantly reduced, although not completely eradicated. Although drinking saloons to remain open for the habitual drinker, the counter attraction was also provided. Kautilya's *Arthashastra* (Economics) describes the function of the officer-in-charge and means to control the liquor problem. *Arthashastra* suggested restrictions on the number of shops, appropriate locations and severe penalties. The liquor was not allowed to be taken out of the village. The shops were required to provide accommodation to the drinker until he regained his sobriety. These actions helped a significant reduction in the consumption of liquor. In the reign of Emperor Ashoka, who was a staunch Buddhist, drinking was reduced to "infinitesimal proportions" (Hassan, 1922). He considered the spread of *Dhamma* (Buddha's Teaching/Law of Nature) as his moral duty. Emperor Ashoka credited most of his success to the spread of the teachings of Buddha for the social order maintained during his reign. The effect of the reforms during the Mauryan period can be traced from Fâ-Hein's accounts—who arrived in India in about 399 A.D.—which states that "…the people of this country kill no living creature nor do they take intoxicating liquor…" (Legge, 1886). The testimony of Hiuen-Tsang, who arrived in India in around 630 A.D. during the reign of Buddhist emperor Harshavardhana (590 A.D. to 647 A.D.), also suggests that high morality was observed among both masses and the nobles.

3.3 The Muslim Rule

By the time of King Harshavardhana, the acceptance of the prophet Muhammad had widely grown in Arabia. Although an average Muslim would hate the idea of drinks, the Koran has only two such references of drinking. One that drinks is associated with both profit and sin—just that sin is greater than profit, the other is to shun wine, gambling, and status for the reason that they are an abomination of satans work. The follower of the faith gave high importance to the simplicity of life as led by the example of Muhammad and gave away the luxuries. However, later Caliphs did exhibit their weakness and also consumed in excess. Allaudin Khilji (1296-1316) drank wine in quantity, but later on, he gave up drinking and prohibited selling and drinking wine, beer, and intoxicating drugs. Following is an excerpt from Ziai-d-din Barani: "…of wine were brought out of the royal cellars and empties at Badaun Gate in such abundance that mud and mire were produced as at the rainy season…" (Hassan, 1922). For those who did not follow the prohibition: "…Outside this gate, huge holes were dug in which wine drinkers were mercilessly incarcerated, and the severity was such that many die…" (Hassan, 1922). This factor of fear deterred many from drinking, but Atreya (1938) noted that "the evil still continued to an extent".

During the establishment of Muslim rule over India, the kings were guided by the fear of the enemies such that indulgence into drink habits may lead to loss of the kingdom. Once the stability of the domain was reached, the kings resorted to the drink habits.[8] Jehangir (1605-1627) is one of the many examples, which establishes the idea that drinking was common among the ruling class. Following is an excerpt from his memoirs: "…They should not make wine or rice-spirit (darbahra)

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[6] Meditation increases alertness, relaxation, attentional control, and reduced readiness of action.

[7] The other benefits include mood improvement, easing depression and anxiety, improved concentration, attention and focus. Meditation tends to relieve post-traumatic stress disorder (PTSD) and attention deficit hyperactivity disorder (ADHD) symptoms, boosting creativity and promoting emotional stability (American Addiction Center, 2020).

[8] The major exception to drink habit was Aurangazeb. The other exception was Tipu Sultan; he even ordered the felling of all the trees tapped for toddy.

or any kind of intoxicating drug, or sell them; although I myself drink wine, and from the age of 18 years up till now, when I am 38, have persisted in it …" (Rogers, 1909).

It is observed that during the Muslim rule, drinking habit was promoted rather than discouraged. However, this effect was limited only to the affluent class, whereas the masses remained uninfluenced. It turns out that the significant change in the habits of consumption was brought by the rule of the East India Company in the colonial era.

3.4 Colonial India

The East India Company considered excise as a legitimate source of revenue and thus preferred promotion of consumption to maximise the revenue. The initial system that was brought under practice was the pure farming system. In this system, the government had no interest in the manufacture, or sale of liquor. It used to get its dues from the individual bidders. The bidders who bought the farms were reluctant to gain high profits as it was one way to keep the competition away, thus encouraging the hereditary occupation. Secondly, higher sales may increase the bid price, which adds to their reluctance. The system led to the least possible incentive to promote consumption.

The government's aim all along was to tax the liquor before it was sent out to a retail seller. This was realised by the evolution of the central distillery system, wherein pot-stills scattered all over the country were collected into government enclosures called distilleries. This allowed the government to impose the still-head duty, sufficing that the government tends to maximise revenue. As the conditions differed over various provinces, this led to the evolution of several systems.[9]

The introduction of the distillery system led to an increase in competition for manufacturing, supply and sale of liquor and more considerable revenue for the government. Although the settled policy of the government has been to minimise the temptation to those who do not drink and discourage excesses among those who do, this never really brought into effect the reduction in consumption (Government of India, 1905). To avoid any blame, the government also outlined the restrictions on the number of shops, but it never really benefited. Instead, the government ensured that no loss of custom or revenue would be entailed. This was made possible by an appropriate location for the shops and removing the additional ones. Moreover, the government policy was perverted, such that "departmental rules regarding the location of shops are broken in 20 to 40 per cent of the cases" (Hassan, 1922).

The government's policy, which suggested a reduction of consumption by increases of taxation, was utilised in such a way that tax increases never reduced the increases in consumption. The Government of India further reported that consumption of liquor had increased almost everywhere (Government of India, 1914) (see Table 1).

The Indian political leadership gained momentum against the British tactics, and Gandhi launched a vigorous campaign against alcoholic drinks. Later, in the year 1925 government accepted the recommendation and tried to introduce prohibition by stages. However, over time the government reverted to its old policy. This led to strong reactions from the Indian political leadership. In the 44th session of the Congress in Calcutta, the Indian National Congress (INC) adopted the clause on "total prohibition of intoxicating drinks except for medicinal purposes" in its Bill of Rights. Later, all parties convention drafted the following: "…It shall be the duty of Commonwealth to save its citizens from the evils and temptations of alcoholic liquor…" (Planning Commission, 1964). In 1937, Congress ministries introduced prohibition in the parts of Madras, Bombay, Uttar Pradesh, Bihar and Central Provinces.

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[9] This includes (1) The District Monopoly System, (2) The Contract Distillery System, (3) The Free Supply System, and (4) The Modified Distillery System.

Table 1: The Statistics Showing Increases in Provincial Alcohol Consumption in Lakh[10] Proof Gallon

Province	1900-1901	1911-1912	Difference	Percent Change
Punjab	248524	565238	316714	127.44
Central Provinces	266180	1067000	800820	300.86
Bengal with Berar and Orissa	608298	1876319	1268021	208.45
Madras	886369	1628178	741809	83.69
United Provinces	1214798	1538504	323706	26.65
Bombay and Sindh	1717775	2933034	1215259	70.75

Source: Report on Indian Excise Committee 1905-06

Post-independence, since the constitution was adopted, total prohibition was brought in Andhra Pradesh, Assam, Madhya Pradesh, Orissa, Mysore and Kerala. Over time, nearly all the states introduced the prohibition; however, the implementation did not work out as expected and was reversed, citing financial losses.

4. Overview of Some Important Studies on Prohibition of Alcohol Consumption in India

4.1 Prohibition in Salem District (1938)

As noted above, the first experiment on prohibition was conducted in the district of Salem, India. The results were encouraging. However, it must be noted that these findings address only the short term effect of prohibition. Thomas surveyed four villages and Salem (Town), intending to observe the changes in consumption, budget shares, income, trade and employment due to prohibition. The study report concluded: "liquor consumption completely stopped during the prohibition period, except in the border villages, and among a few urban labourers; the budget shares on food, clothes and amusement were improved; borrowings among labourers were reduced; the position of women and children among the working classes was substantially improved" (Thomas, 1939). The report suggested: Raising the standard of living is the only sure way of permanently controlling the drink evil; suitable counter-attractions must be given to erstwhile drinkers; a more prolonged time must elapse before one can assess the results of prohibition fully; and therefore resurveys must be carried out in Salem annually for another four years (Thomas, 1939).

4.2 Dry Area Scheme in Ahmedabad (1948)

The short term study was conducted to account for the effect of prohibition within four months of its introduction. After the prohibition was implemented, the departmental officers observed that the savings were utilised for a beneficial purpose and gambling was reduced. There was a contraction in the cases of beating, abusing, quarrels and brawls in Chawls (building for labourers' accommodation) and *mohallas* as testified by both women and children of the study area. The overall economy showed improvement (Prohibition Research Advisory Board, 1948).

4.3 Prohibition in Andhra Pradesh (1954)

This study conducted by the Government of Andhra Pradesh found overwhelming evidence that prohibition has neither eliminated nor reduced drink evil. The study team reported that the law was

[10] 1 lakh = 100,000

disregarded, and corruption was rampant; illicit distillation and smuggling seemed feasible only due to corruption in the administration of the law. On the question of improving economic, social and physical condition of the drinking classes, the committee reported betterment of conditions for a minority. However, the bulk of them felt that the state of the classes was either just as it was before or worse. On the question of efficiency and well-being of working class, the committee reported deleterious drinks had resulted in the deterioration of the physique and lowering of the efficiency of labour. Regarding the effect of prohibition on juveniles and juvenile delinquency, the committee reported ill effects as boys were used to screening the adults to sell contraband stuff. This not only introduced them to crime, but also initiated the habit of drinking (Government of Andhra Pradesh, 1954)

4.4 Enquiry on Nation-wide Prohibition (1954)

As stated earlier, the Government of India had set up a Prohibition Enquiry Committee to understand the working of prohibition in India. This prohibition committee suggested better implementation of prohibition laws; prohibition on an advertisement from 1st of April 1956; reduction in liquor shops; reduced number of open days for liquor shops; reduction in supplies and strength of distilled liquor; progressive reduction in the number of shops and quantities of *ganja, charas, bhang* and other drugs; no permits on health grounds; and mobile squads of police to attack the illicit supply of liquor and drugs. The committee emphasised the role of education, press, counter-attractions, and recreation centres in reducing people's addition. The committee further recommended setting up of a central research institute and a central committee under the Planning Commission or the Ministry of Home Affairs. On the financial aspects, the committee supported the government's view to give adequate assistance to States that depend on excise for a considerable part of their revenue to introduce prohibition in their areas and push through other social welfare schemes. The committee also drew particular attention to the recommendations of the Taxation Enquiry Commission regarding the steepening of estate duties, rationalisation of rate structures and tightening up of tax collections (Planning Commission, 1954) (see Appendix 1 for responses of State Governments on select important questions).

4.5 Study Team of Prohibition (1964)

The committee found extensive misuse of spirituous preparations, which are in many cases used as a substitute for potable alcohol in both dry and wet states. The relative success of prohibition laws in Madras and Gujarat was considered due to (1) low propensity to drink among Madras and Gujarat, (2) influence of tradition and religion, (3) period of education and preparation preceding prohibition, and (4) existence of a large number of social workers. The team analysed the budget of 21,197 working-class people in 50 different centres spread all over the state. The analysis reveals that 10 to 25% of working-class families drink in wet areas compared to15% in the entire country. 9% of the average income was spent on drinking in a family in which at least one member is addicted. The intensity of illicit liquor was found to be 20%. The ratio of consumption between dry and wet areas was suggested to be around 87:130. The illegal liquor bill in wet regions was estimated to be about nine crore rupees, and in dry areas, it was about 43 crore rupees.[11] The committee recommended that people belonging to Scheduled Tribe can be given relaxation in production and consumption at home. The committee stated that the liquor trade must not be run for private profit, and absolute control over bonded warehouses, breweries and distilleries were imperative. If required, they could be shifted to the public sector (Planning Commission, 1964).

[11] Rupees 1 crore = Rupees 100,00,000.

4.6 Study Using National Level Surveys

An econometric analysis was conducted by Mahal (2000). He focused on excise revenues, price elasticity, minimum legal drinking age, and crime aspects of prohibition and its impact on rural India. Mahal found that the price elasticity of demand for alcohol participation was -0.50 for people aged 25 years and above and -1.00 for those aged between 15 and 25. More considerable reductions in alcohol consumption follow for people aged between 15 and 25 years on account of prohibition. Increasing the age from 18 years to 21 years achieves nearly 60 per cent of the effect of prohibition on alcohol consumption. Increases in the minimum age beyond 21 years do not appear to be effective. Mahal (2000) claims: "If some of the tax revenues from an alcohol tax are used to school and educate the public, the gains in terms of reduced alcohol consumption rates would be significant. Also, improved law enforcement may help".

Rahman (2004) conducted another vital study. It was found that the state with a higher proportion of revenues from state excise enact less prohibition. A grant from the centre is not significantly related to prohibition policy. States with a higher share of central union excise enact prohibition. Prohibition is enacted by non-alcohol producing states to extract higher central transfers. The alcohol industry has a significant effect in deterring prohibition. Tax instruments could also be used to curtail consumption effectively. *Bidi*s and leaf tobacco are a complement to arrack and toddy and a substitute to Indian Made Foreign Liquor (IMFL) in both rural and urban areas. Prohibition increased food and fuel budget shares due to increased consumption of pulses, fruits, vegetables and dairy products. Prohibition led to a decrease in burglaries and total crime but higher liver disease deaths and homicide deaths (Rahman, 2004).

4.7 Bihar Prohibition (2017)

Asian Development Research Institute (ADRI) conducted a short term study just after six months of introducing prohibition in the state of Bihar. The study focused on crime rates and purchasing behaviour of people. The study showed a substantial impact of prohibition on crime rates in Bihar. The study showed a 66.6% fall in kidnapping for ransom, 28.3% fall in murder, 22.8% fall in dacoity, and a marginal fall of 2.3% on crime against women. In terms of purchasing behaviour of people, the study showed a substantial increase in the purchase of milk and milk products after prohibition. A considerable increase was also observed in lifestyle expenditure (ADRI, 2017). The Development Management Institute conducted another study to ascertain the impact of prohibition in Bihar on violence against women, children and overall impact on village society. The study found a considerable fall in the negative behaviours. The study also reported utilising the saved time by men to interact with family and for additional economic activity (DMI, 2017).

4.8 A Challenging Alternative

Hardiman's (1985) study on peasants and tribal community of south Gujarat provides an intuitive solution of allowing peasants to tap their trees for toddy, citing the stability and responsible drinking in society before introducing the Bombay Abkari Act of 1878. However, he concluded that the system is unlikely to be implemented as a capitalist would want the market and government will want the excise revenue.

It is to be noted that class, caste, occupation, and culture have a significant impact on alcohol consumption in India. A survey conducted by Thimmaiah (1979) in the state of Karnataka noted that the so called backward castes/classes consume more alcohol than the so called forward castes/

classes. In terms of occupation, Thimmaiah (1979) concluded, agricultural labourers and manual labourers were found to consume more alcohol than people belonging to other occupations (contrarily, in urban areas, individuals in technical and professional jobs consume more than that belonging to other occupations). The importance of the caste / social category was also stressed by the study conducted by Bombay University in 1951 in the area of south Gujarat, which pointed out 80% of the family of tribals, untouchables, and so called backward caste people consumed one or more drinks. In contrast, only 7.5% of high caste families did so (Hardiman, 1985).

Hardiman (1985) noted that drinks occupied a central place in the culture of the poor and landless peasants of south Gujarat;[12] even their religion made drinking respectable and allowed them to drink without any guilt. The role of society, culture and occupation is further elaborated by the study of Doron (2010), which shows how caste, class, culture and profession are interlaced (citing the case of divers who are engaged in risky and stigmatised occupation of recovering the corpses from rivers). Moreover, country liquor (locally produced) is also considered as remuneration in some professions (Chowdhury et al., 2006). The differences by social category / caste and class / wealth index also come out clearly from the recent National Family Health Survey 4 (NFHS 4) report of 2016 elucidating tribal men and men from the lowest quintile group of wealth index have the most significant proportion of alcohol consumers in the contemporary period (see Table 2).

Table 2: Alcohol Consumption by Social Category and Wealth Index

Social Category/Caste and Class/Wealth Index	Percent of men who drink alcohol	Frequency of drinking		
		Almost every day	About once a week	Less than once a week
Caste/Tribe				
Scheduled caste	36.3	13.0	42.0	45.0
Scheduled tribe	41.3	15.9	43.9	40.2
Other backward class	28.5	10.6	40.0	49.4
Other	21.1	9.2	38.6	52.2
Don't know	26.0	12.0	44.9	43.0
Wealth Index				
Lowest	35.4	15.7	39.8	44.5
Second	29.9	13.8	39.3	46.9
Middle	30.0	12.0	40.9	47.1
Fourth	27.8	9.3	41.7	49.0
Highest	25.1	7.7	41.6	50.7

Source: NFHS 4 report, 2016

On the effectiveness of the prohibition policy, the findings from Salem, Ahmedabad, and Bihar show a positive outcome. However, it must be noticed that these are short term outcomes. Over time, illicit liquor tends to make its way into the prohibited region. The recent report published by the National Family Health Survey 5 (NFHS 5) in the year 2021 notes that 15.5% of men over 15 years of age consume alcohol in dry Bihar. The hooch tragedies are also often reported in Bihar and Gujarat, showing the weakness in the effective implementation of the prohibition policy. The

[12]Hardiman (1985) states: "Drinking provided an important means by which the peasants expressed their mutual solidarity. To drink together was considered a mark of friendship, and it was considered impolite not to offer drink to a guest. Drinks were served at meetings of village or tribal panchayats to put a seal on the discussion".

effectiveness of prohibition in Salem district in pre-independence period and non-effectiveness of prohibition in post-independence period also points towards the change in perceptions in terms of prohibition in post-independence India. In the pre-independence era, prohibition was essentially a tool against imperial powers to attain freedom along with the moral compass embedded in it.

In contrast, in the post-independence era, it has a revenue consideration and a moral compass embedded in it. Needless to say, on most occasions, the revenue consideration mattered the most to the government in the post-independence era. Contrarily, the moral compass effectively lures the women voters and has been used effectively to bring prohibition in several states post-independence.[13] The other important aspect of alcohol prohibition policy is the reliance of state governments (which enacted the prohibition) over the central assistance through grants and central transfers (considering the share of excise revenue pre-prohibition). The policy like prohibition skews the equation of centre-state fiscal relationship towards the centre (vertical imbalance) and more so in the present times when several state taxes are subsumed under the Goods and Service Tax (GST).[14, 15] Thus the prohibition in the current times can be reflective of the loss of state excise revenue, skewed centre-state fiscal relation, weak/no intent for policy implementation, rampant corruption in public officials, additional expenditure to state exchequers along with people consuming deleterious drinks (adversely affecting their health), showing the policy which was constructed for the benefit of masses turn out to be regressive for democracy and economy as a whole. The following section provides a brief discussion and conclusion based on the literature reviewed in this paper.

5. Discussion and Conclusions

The conclusion on "to consume or not to consume alcohol" requires considering several aspects of alcohol consumption. Peasants and labourers worldwide consider some form of alcohol, a nourishing drink, and use it, especially for relaxation and recreation purposes. Pleasure is an important reason why people often consume alcohol, and pleasure has shown many positive health benefits. Moderate drinking, especially along with meals, is a part of several cultures in the west and has proven health benefits. Hence, the blanket structure of total prohibition may not be an acceptable solution. The readings from ancient and medieval India also clear that stringent regulation and punishment is not a plausible solution.

The general understanding that develops is that it is challenging to implement a policy like alcohol prohibition over a period. The approach leads to a significant loss in revenue which may hamper the standard functioning of the government and more so if the government is indebted.[16] It also makes the state governments rely on central assistance, skewing the centre-state fiscal relationship

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[13] Luring women voters in the name of prohibition is a part of popular politics as pointed out by several newspaper and research articles.

[14] The goods and service tax (GST) since July 2017 has replaced multiple indirect taxes levied by state governments subsuming state VAT, luxury tax, entry tax, entertainment and amusement tax (except when levied by the local bodies), taxes on advertisements, taxes on lotteries, betting and gambling, state surcharges, and cesses.

[15] The 7th schedule of the constitution clearly defines the union, state and concurrent list. However, over the years there has been transgression of centre into state subjects through centrally sponsored schemes and enlargement of concurrent list. Moreover, there is a rise in the share of conditional and tied grants on the expenditure side of the states.

[16] However, sin tax reform act 2012 (Philipinnes) is considered a lesson to several countries to mobilise the resources for revenue generation. The sin tax reform simplified and increased the tobacco and alcohol excise taxes. The reform led to sizable gains in finance, health and good governance (World Bank, 2016).

leading to vertical imbalance. Secondly, the initial promising results are primarily due to supply shocks, and, in the longer time horizons, alcohol makes its way back through illegal means. Thirdly, the prohibition increases smuggling activities, production of illicit liquor, corruption rather than solving the social problems over the period. Illicit liquor / home-brewed liquor / other substitutes that make their way during prohibition often badly affect/s consumers' health and are likely to increase mortality, which contrasts with the expected positive health outcome of prohibition policy.

The positive effects like reduction in total crime, as observed by Rahman (2004), and domestic violence need to be catered by alternative policy measures, most desirably by increasing tax rates, as pointed out by Rahman, and by educating people along with the strict implementation of minimum drinking age laws as pointed out by Mahal (2000).

To conclude, the most rational means to reduce alcohol consumption is education. In addition, it may also be reduced through inculcation of moral values along with the spiritual progress of an individual and society. The anxiety leading to heavy drinking may be countered by *Vipassana* meditation, transcendental meditation, and yoga at the individual level. For addicts, a counter attraction approach has proved to be helpful. From the government point of view, pricing and taxation are likely to provide positive benefits. Poverty alleviation programmes can keep society relatively soberer. Regulating the physical availability of alcohol, modifying the drinking context, drink-driving countermeasures, restrictions on marketing, persuasion strategies, treatment, and early intervention services can be essential to overcome the alcohol menace. From the Indian perspective, occupation, class, caste, and culture play an important role in alcohol consumption; hence, any public policy regarding alcohol has to consider these aspects before enacting the comprehensive prohibition policy. In the present scenario (assuming the gravity of the problem), a solution at the local government level is more appealing than a blanket ban over the entire state or the country.

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Appendix 1

The replies of various state governments on select questions on prohibition and revenue (1954-55)

State Governments' replies sought on:	1) Effectiveness of Prohibition
	2) Improvement in condition of Drinking Classes
	3) Attitude of Women
	4) Active support of general public
	5) Corrupt Practices
	6) How to Balance the State Finance
Replies:	
Government of Andhra	1) Prohibition neither eliminated nor reduced the drink evil
	2) Improvement in only those who have completely abstained from drinking
	3) Women welcome prohibition
	4) No active support from the public
	5) Regular payments and bribes for shielding prohibition offence
	6) Agriculture Income tax can help balance state finance
Government of Assam	1) Addicts still consuming liquor (country spirits) - 25%, Toddy - 10%, Foreign liquor - 30%
	2) Too early to tell
	3) Women welcome prohibition
	4) Yes
	5) Negligible
	6) New industries as new sources of revenue over the span of years
Government of Bihar	1-5) No Prohibition
	6) Industrialise the state
Government of Bombay	1) About 30% of previous addicts consume liquor and drugs
	2) Prohibition has been instrumental in improving the condition of drinking class
	3) Women support prohibition
	4) Ameliorative activities-Yes, Enforcement-Not satisfactory
	5) No failure of enforcement but corrupt practices like bribes taken by officials
	6) Increase in sales tax.
Government of Himachal	1-5) Prohibition applied at very small portion
	6) Starting government sponsored industries, exploitation of forests and reduction on overall expenditure
Government of Hyderabad	1) Prohibition not in force
Government of Madhya Pradesh	1) About 20% of previous addicts consume liquor and drugs
	2) Improvement in condition of drinking classes
	3) Yes
	4) Not received active support
	5) Petty enforcement staff started collecting bribes from offenders
	6) Introduction of sales tax, motor spirit and lubricants tax, tobacco tax etc.

Government of Madras	1) Around 25% of previous addicts consume liquor and drugs
	2) Improvement observed
	3) Yes
	4) No support from general public
	5) Corrupt practices observed in lower ranks
	6) Sales tax almost compensated excise revenue
Government of Mysore	1) About 50% of previous addicts consume liquor and drugs (bordering wet districts 50%; Interior districts negligible)
	2) Yes
	3) Yes
	4) Normal public apathy
	5) Corrupt practices are reported
	6) Difficult to find sources, need central assistance
Government of Orissa	1) 15-20 % arrack and 2% toddy consume liquor and drugs
	2) Yes
	3) Yes
	4) no strong condemnation of drink by public
	5) no corrupt practices
	6) Taxation introduced on sales, entertainment, agriculture income, motor spirit & lubricant, stamp duty, court fees, land rent, motor vehicle act tax rise
Government of Punjab	1) Consumption reduces by 20%
	2) Improvement observed
	3) Yes
	4) Will come if properly mobilised
	5) Not observed
	6) Subsidy by union government, nationalisation of transport and key undertaking industries
Government of Travancore-Cochin	1) Arrack addicts observed - 15%, toddy - 20% Foreign liquor - 15%
	2) Yes
	3) Yes
	4) No active support from public due to poverty and food value of toddy
	5) very scarce
	6) Introduction of sales tax.
Government of Uttar Pradesh	1) Country spirits: 60%, toddy 10%, foreign liquor 80% of previous addicts consume liquor and drugs
	2) Improvement observed
	3) Yes
	4) No
	5) Large scale illicit distillation, however no evidence of corrupt practices
	6) Union government to subsidise state government

Government of Kutch	No specific response
Government of West Bengal	1) Prohibition not introduced in the state
	6) Central subvention required
Government of Madhya Bharat	1) Prohibition effective to a great extent
	2) Improvement
	3) yes
	4) No
	5) No such instances
	6) Difficult to find alternate source of income
Government of PEPSU*	1) No prohibition introduced
	6) Prohibition not advisable and hit heavily to state revenue
Government of Saurashtra	1) Only addicts of foreign liquor observed, nil for country liquor and toddy.
	2) Improvement
	3) Yes
	4) Yes
	5) Very few
	6) Loss in finances not significant
Government of Ajmer	1) Prohibition not in force
Government of Bhopal	1) Prohibition not in force
Government of Coorg	1) Prohibition not in force, consumption is issued by permit
	6) It will be very difficult to raise revenue if prohibition is introduced
Government of Delhi State	1) No prohibition introduced
	6) Tax increases by state and central contributions
Government of Manipur	1) No alcohol prohibition in the state
Government of Tripura	1) Prohibition still in its inception
Government of Vindhya Pradesh	1) Prohibition not in force

Note: *Patiala and East Punjab States Union
Source: Report on Inquiry on Nation-wide Prohibition, 1954

BOOK REVIEWS

***Agricultural Development and Natural Resource Management*, by Ajit Kumar Singh, Mittal Publications, New Delhi, 2021, ISBN 978-93-90692-68-2, pp. 486, price Rs. 1800/-**

Indian agriculture has witnessed tremendous changes during the last five decades following the adoption of green revolution technology during the late 1960s. This technology was initially adopted on a large scale in the regions well-endowed with irrigation. As this technology possessed the vast potential for an increase in productivity, it led to impressive growth in agricultural output in the regions where it was adopted. Because the spread of the green revolution was highly skewed in favour of certain states and regions, this led to high growth in agricultural output in selected regions while other regions suffered from stagnancy or poor growth in agricultural output (Chand and Chauhan, 1999). The spread of new technology and then the pattern of growth of agriculture has, however, also brought in its wake uneven development across regions and crops (Nikam and Deosthali, 2004; GOI, 2005) and technological change resulted in widening the regional as well as interpersonal disparities (Bhalla and Alagh, 1979). Initially impact of the green revolution was confined to wheat and rice only and regions with good irrigation facilities. As a consequence, much of the growth, which took place after the introduction of the HYVs, was confined to a limited number of states like Punjab, Haryana, Uttar Pradesh (UP), and coastal Andhra Pradesh (Dantwala, 1986; Bhalla and Singh, 2001). With marked regional diversities in the agro-climatic environment, resource endowment and population density are likely to be characterized by uneven economic and agricultural development among the various regions/states. These regional differences in agricultural development tend to get accentuated further because of varying levels of investment in rural infrastructure and different adoption of technological innovations (Bhalla and Singh, 1997). After the achievement of food security for the economy, controversies started in the mid-1980s regarding whether this agricultural development is compatible with environmental sustainability. The rapid population growth and economic development in the country are degrading the environment through the uncontrolled growth of urbanization and industrialization, expansions and intensification of agriculture, and the destruction of natural habitats. The increasing resource degradation problems such as groundwater depletion, water-logging, salinity, and land degradation add to the challenges.

The book under review is the edited volume of 28 papers of the author (published as well as unpublished) during his carrier mostly dealing with agricultural development and natural resource management. These papers are divided into two parts having four sections in Part I.

Section I includes five papers of which three are published and two are unpublished works of the author having a focus on the pattern of agricultural growth at interstate as well as at the national level. The first paper provides an overview of how agriculture and the rural economy has changed in India since 1951. These changes include the cropping pattern, production technology, land distribution, and agrarian relations. The paper highlights that India is no longer a predominantly agricultural economy either in terms of employment or income and suggests necessary changes in the policy for rural and agricultural development. The second paper examines the levels of agricultural development during the period from 1961 to 2011 and reveals sharp variations in the levels of agricultural development across states in India in terms of use of technology, degree of commercialization, and productivity levels. The author argues for shifting focus from irrigated areas to dry areas. The state-wise growth in agriculture during the pre and post reforms period is presented in the third paper. The author observed that a high rate of growth in agriculture was estimated in

the pre-reform period and deceleration in growth rate was recorded in the majority of the states may be due to a sharp decline in public sector investment in agriculture coupled with a policy of reduction in subsidy and declining support to the public procurement system. The fourth paper has examined the trend in inter-regional disparities in the levels of agricultural development and growth rate of agriculture since 1971 and suggests the regionally inclusive pattern of agricultural growth. The fifth paper in this section deals with the recent trends in agricultural growth and disparities at the state level covering the period from 2004-05 to 2016-17. The study reveals that increased use of fertilizers, improvement in rural literacy, and growth of irrigated areas had a positive impact on agricultural growth while public or private investment in agriculture did not show any significant relationship with agricultural growth. The paper highlights that the drivers of agricultural growth have differed from state to state.

Section II has six papers related to agricultural policy and institutional factors. The sixth paper (first paper in this section) analyses the likely consequences of the new economic policies on the agricultural sector. The author argues that the new policy package is a clear departure from the past agricultural policies and cautioned about possible disruption in the process of agricultural growth. The seventh paper deals with the strategy for agricultural development in Uttar Pradesh and suggested that any strategy of long-term development of agriculture in UP must address the mitigation of the structural and infrastructural constraints. The integration of agricultural planning with environmental planning for sustainable development is suggested. The study results based on a field survey of 180 cultivators spread over 9 villages from 3 selected districts of the UP are presented in the eighth chapter. The paper suggests the crop diversification towards high-value crops as a strategy for increasing income and employment of farmers. The results indicated that net returns on horticultural crops are three to five times higher than that on food grain crops. Author suggested the development of a market-led process through public policy in a systematic manner. The issue of economic viability and sustainability of small-scale agriculture in the Gangetic plains of UP is discussed in the ninth paper. The paper highlighted the resource base, income, and constraints posed by the small size of holdings and the problems faced by farmers in accessing inputs and marketing their produce. The paper concludes that in the long run, the solution to the problem of low land-man ratio in agriculture and small size of holding requires a large shift of agricultural workers to the non-agricultural sector. In the short and medium-term, measures are required to increase productivity in agriculture and generate non-agricultural sources of employment in the rural areas. The tenth paper has discussed the income levels and livelihood issues of farmers on the basis of a large field study in UP. The study has shown that agriculture is not able to provide sustenance to a large number of farmers in this state. The study has suggested a multi-sectoral integrated strategy of promoting agricultural and non-agricultural activities in the rural areas embedded in the local conditions, resources, and institutions to meet the challenge of sustainable development in the state. The deficiencies in the public delivery system in agriculture based on a field survey of nearly 3500 farmers in UP conducted in 2010 is presented in the eleventh paper. The survey has revealed that the farmers are facing various problems related to agricultural marketing and service delivery of inputs. The paper has suggested that there is a clear need of revamping the various programs and delivery systems at the grassroots level so that the problems faced by the farmers could be effectively addressed.

Section III includes six papers dealing with agricultural growth and the condition of the farmers in UP. The twelfth paper analyses the inter-relationship between agriculture and industry at the regional and district level and found no strong link at either level. The thirteenth paper examines the impact of the green revolution on agricultural production structure in the UP. The paper shows that the cropping pattern has undergone significant changes in UP and this has created serious

imbalances in the product mix, particularly between cereals and pulses. Author concluded that a well-thought-out price policy can serve as a potential instrument of crop planning. Fourteenth paper deals with the important issues related to agricultural credit and farmers' indebtedness and found that about 40 percent of farmers in the state are indebted and reported shortcomings in the institutional credit system. The poor outreach of credit institutions and low access to marginal and small farmers need to address to ensure an adequate flow of credit to the farmers of the State. The next paper presents the condition of farmers in UP based on field survey data and found poor reach of various government programs and schemes. Besides, the dominance of traders in the agricultural marketing system and the poor reach of public extension agencies are also highlighted. The last two papers in this section present the performance of agricultural growth, employment, and poverty in the state over a long period. The positive growth of agricultural output was estimated in the pre-reform period while continued stagnation was estimated during the post-economic reforms period. The high growth of employment in the agricultural sector during the late eighties was disappeared in the nineties due to a sharp decline in agricultural growth. Author argued that both growth and welfare implications of the new economic policies have been unfavorable for the rural sector in UP. The last paper reveals that the high agricultural growth reported in UP during the 1970s and 1980s could not get maintained in the nineties. Besides, agricultural growth has been marked by sharp variations in growth rates at the regional and the district level. The irrigated area and fertilizer consumption which were the main sources of agricultural growth during the 1970s and the 1980s, has significantly slowed down after 1990-91. The paper highlighted the major constraints in agricultural development in the state and suggested an integrated strategy for accelerating agricultural growth in the state with a particular focus on small farmers and lagging districts.

Section IV includes four papers and covers the regional pattern of agricultural growth in UP. The eighteenth and ninetieth papers reveal the inter-regional and inter-district differences in agricultural productivity in UP. The papers suggested the balance-regional development policy focusing on the spatially widespread pattern of growth targeting lagging districts. The next paper highlights the relative performance of the agricultural sector in the eastern region and found that low levels of irrigation and inadequate institutional agricultural credit are major bottlenecks hindering the development. The paper suggested to increase irrigation coverage and strengthening of institutional credit facilities through various programs. The last paper of this section deals with the problems of agricultural development and food security in the Bundelkhand region of UP. The paper reveals that agricultural development in this region is constrained by agro-climatic and geographical conditions. Thus, this region requires a region-specific strategy of development such as developing and promoting dryland agriculture technology, water conservation techniques and technology, integrated agriculture (with horticulture and livestock).

Part II of the volume contains seven papers on different aspects of land and natural resource management. In the first paper, some aspects of land utilization in the UP are highlighted, such as low land-man ratio, low forest coverage, and ecological imbalance due to excessive conversion of land to non-agriculture use. Besides, problems of heavy soil erosion, overgrazing, recurring foods, etc. are reported which needs to be controlled through a comprehensive program. The next paper highlights the imbalances created by extreme biotic pressure in land use and its implication for sustainable development and outlines the requirements of an optimum land use plan for the state of UP. The author also suggests an integrated approach to the scientific management of natural resources at the national and state levels. The twenty-fourth paper deals with the status and problems of land use in the UP and reported that area under different land-use categories is considerably degraded and has low productivity. Author suggested that scientific and eco-friendly

policies of land management should be adopted to end the vicious circle of biotic pressure and environmental degradation. In the next paper, the author argues that land and water resources are interrelated in a dynamic natural setting and have to be planned together and advocates for conjunctive use of surface and groundwater resources. The possibilities and scope for regional planning in the management and development of water resources in the Central Zone (Madhya Pradesh, Bihar, UP, and Rajasthan) are discussed in the next paper. Paper suggests that efforts should be made to move towards a national water grid after having a study of the technological, economic, ecological, and organizational considerations involved in it. The next paper deals with the status and management of forest resources in Uttar Pradesh. Paper advocates that the priority in land-use planning has to be given to ensure adequate and effective cover of forests in the state, by bringing the additional area of 14.9 lakh ha (1 lakh = 100,000) to attain the recommended norm of forest coverage. The last paper in the volume deals with the management and development of livestock resources in the Central Zone (Uttar Pradesh and Madhya Pradesh). The paper reveals that the number of livestock is excessive and their productivity is very low. The author suggests that the strategy of livestock development should aim at a reduction in its number and improvement in the quality of the livestock through cross-breeding as well as improvement in the infrastructure of veterinary services

The author has made a significant contribution to the process of development planning through his thoughtful writing on various aspects of agricultural development and natural resource management planning through the analysis of available data. As the book is a collection of essays written by the author at different periods of time, it has its own limitations. One of the most useful contributions of this book is that the articles provide the complete scenario of agricultural development in the state of Uttar Pradesh during different periods. However, some of the findings are repetitive. This book is a very good addition to the existing literature on the subject. This is worth reading for the students, researchers, and policymakers and can serve as a treasure for the university and research institution libraries.

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***Land Reforms and Rural Development*, by Ajit Kumar Sigh, Mittal Publications, 2021, ISBN 978-93-90692-69-9, pp. 500, price Rs. 1650/-**

Land is one of the most litigations and controversial subjects in a populous country like India. As like in any other country, the basis of all economic activity of most of the Indian population is the land. Land like many other gifts of nature was considered free for all by many communities that did not bother to fix boundaries for private ownership. But the colonial rule by the British saw a dramatic shift in the land ownership pattern of India. Land of many tribal/forest communities was seized by British cultivators and Zamindars, and land tax was widely collected through systems like Zamindari, Ryotwari or Mahalwari. A rich-minority-landowning class and a poor-landless-peasant class became symbols of Indian agrarian society. As the ownership of the land for some reason or other stayed with the rich Zamindar class, they became more powerful year after year, accumulating wealth. The peasants, who actually cultivated the land, were often in poverty and remained landless. When India adopted socialistic principles after independence, equality in all spheres – social, economic, and political was envisioned. Land reforms are essential steps towards social and economic equality as land is a fundamental asset needed for the healthy development of an individual.

Land is one of the most essential assets for rural people to overcome poverty. Land also ensures health and social security by generating employment, investment, social capital and collateral. Secured access to land is vital for diverse land-based livelihoods, sustainable agriculture, economic growth, poverty elimination and equity. The landless comprises the poorest segment of the rural population and survives under the poverty line. This group is forced to rely on wage labour, often on a piecemeal, daily, or seasonal basis. If households are unable to cultivate their own land, sharecropping and leasing, on a seasonal or more permanent basis is widespread. The redistribution of land from the rich to the poor is generally known as land reform which includes regulation of ownership, operation, leasing, sales, and inheritance of land. In an agrarian economy like India with great scarcity and unequal distribution of land coupled with a large mass of the rural population below the poverty line, there are compelling economic and political arguments for land reform. Not surprisingly, it received top priority on the policy agenda at the time of Independence. In the decades following, India passed a significant body of land reform legislation. Land reform legislation in India consisted of four main categories: abolition of intermediaries who were rent collectors under the pre-Independence land revenue system; tenancy regulation that attempts to improve the contractual terms faced by tenants, including crop shares and security of tenure; a ceiling on landholdings with a view to redistributing surplus land to the landless; and finally, attempts to consolidate disparate landholdings. The 1949 Constitution left the adoption and implementation of land and tenancy reforms to state governments. This led to a lot of variation in the implementation of these reforms across states.[1]

The book under review contains 25 papers published by the author on the broad theme of land reforms and rural development issues in Uttar Pradesh (UP). The papers have been arranged in four sections dealing respectively with themes of land reforms, rural development and poverty, rural workforce and structural change, and rural unemployment.

The first part on land reforms in Uttar Pradesh includes seven papers. The first paper in this part was published in 1971 in which author argues for framing a land ceiling policy to about 4 hectares of irrigated land and priority in the redistribution of surplus land to marginal and small farmers to make their holdings viable. Author cautioned on drastic lowering of ceiling that would be inadequate to meet the land requirement of the small farmers. The second paper was published in 1989 makes

[1] https://personal.lse.ac.uk/ghatak/landref.pdf

a critical assessment of land ceiling legislation and land re-distribution in UP. Author points out that first act passed in January 1960 not only had many loopholes but also was not implemented effectively in the face of opposition by the powerful lobby of land-owners and thus had no significant impact on the agrarian structure of the state. The said ceiling Act was amended in 1972 which had reduced considerably the ceiling while same had also allowed various exemptions. Author suggests improving land ceiling program with due cautions and strong determination, administrative preparedness, and ideological commitment. The third paper published in 1992 presents an assessment of land reforms on agrarian structure and agricultural growth in UP. Author found that the tenurial reforms in UP taken up soon after independence were successful in abolishing the intermediary rights on land and creating an agrarian structure primarily based on peasant proprietorship. This together with the land consolidation measures taken up during the subsequent period had a positive impact on agricultural development and laid the foundations of technological transformation of agriculture in the state. The fourth paper is a case study based on field survey carried out in five villages of Sultanpur district in UP conducted in 1993 which looks at the program of land allotment and its potential as a strategy of rural development. The study points out the inadequacy of the land redistribution program and argues for radical and effective and distribution program to fringe the problem. Paper reveals that implementation of the program suffers from severe shortcomings such as land distributed was of poor quality, allottees had no enough resources to put the land under productive use, inadequate access or availability of credit, extension and inputs. Thus, the impact of land allotment on the economic condition of the allottees was found to be marginal. The fifth paper presents the views of 280 farmers on different land reforms. The study reveals that there was overwhelming support among the farmers to consolidation measures and advocates for the removal of some procedural problems and malpractices associated with the process. The sixth paper presents the findings of a field study carried out by Giri Institute of Development Studies (GIDS) in 2008 covering 279 farmers from five districts of the UP. The study reveals that land distribution program had a positive impact on the economic and social status of the allottees and has brought about a qualitative change in their life and contributed to better health and education of children. However, several deficiencies were observed in the implementation of the program such as selection of non-eligible persons, a discriminatory attitude of the Land Management Committee, delay in getting possession of land, distribution of poor quality of land, demand for illegal payment, lack of government assistance for cultivation, etc. The last paper demonstrates that agriculture in UP is in deep crisis as the size of holding is gradually declining and an overwhelming majority of holdings have become marginal and economically non-viable. The paper makes a strong plea for legalizing the leasing of land, with appropriate safeguards for the landless and the marginal farmers. The paper stresses that a successful program of land policies will depend upon modernization and digitization of land records and increasing access of the poor to capital to purchase land and invest in agriculture.

Part 2 of the volume contains seven papers on rural development and poverty. The overall picture of rural transformation in UP presented in the first paper reveals that there are unmistakable signs of a major transformation in the state since the beginning of planning in 1951. The rural society is experiencing vast changes under the stimulus provided by externally induced technological changes on the one hand, and the increasing demographic pressures on the other. There are signs of emerging problems in the shape of increasing proletarianization of the peasantry, miniaturization of the holdings, relentlessly growing population pressure, the inadequate pace of structural change, sharpening concentration of income and wealth, and ever-increasing number of the unemployed and the poor. The second paper reveals that the absolute level of consumption expenditure is quite low and an overwhelming proportion of the rural population lives very near the subsistence level. Over half the rural population of UP lives below the poverty line and nearly one-quarter below the

line of severe destitution. Further analysis shows that the fluctuations in agricultural output seem to affect the poverty levels in rural areas as in the decline of general poverty levels in good agricultural years. The next paper discusses the trends in poverty ratios and the correlates of poverty. Poverty ratios in UP have been relatively high and poverty levels are found to be associated with the social identity, source of livelihood, landlessness, and level of education of the head of household. Rural poverty is found strongly associated with land ownership as the highest among labour household both in rural and urban areas. The paper also points out that the reach of the poverty alleviation programme has remained limited in terms of coverage and level of assistance and its implementation has been lackadaisical and uncoordinated with little local participation to have any significant impact on the poverty situation in the state. The next paper presents working of the Integrated Rural Development Programme (IRDP) in Banda and Rae Bareli districts of UP. The study results reveal that despite of few deficiencies observed in the formulation and implementation of this program, IRDP assistance had a favourable impact on the economic conditions of the beneficiaries. The suggestions for improving the effectiveness of the IRDP are given such as systematic plan formulation, quality of credit support, simple procedures for loan sanction and disbursement and the need to strengthen the vigilance system to book and punish the guilty. The next paper deals with the SDG 1 which aims at the removal of poverty by 2030. The paper indicates the timelines and milestones to be achieved to meet the SDG 1 target. The paper calls for a much higher allocation to anti-poverty programmes. The next paper presents the findings of a field survey in Sultanpur district focusing on the access of the poor to institutional finance. The study reveals that although the banking facilities are gradually expanding into the remote rural areas, the banking operations require considerable straightening in terms of coverage and revamping in their lending policies so that they become an effective instrument of rural development and poverty alleviation. The paper concludes that privatization of the banking sector lending at this stage is likely to have a very deleterious impact on the development of the backward rural areas and welfare of the toiling masses of the country. The next paper highlights the various types of problems faced by rural population in dealing with formal credit institutions based upon a field study of 510 rural households conducted by the author in five districts of UP. The paper reveals that transaction cost as a per cent of loan amount was the highest in case of Regional Rural Banks (RRBs), followed by cooperatives and formal sector financial institutions while across groups, same was the highest for small borrowers. The paper underscores the fact that the working of the financial institutions has to be reoriented and made people friendly if they are to discharge effectively their expected role in poverty alleviation and rural development. The last paper in this section deals with the nature, extent and characteristics of the rural informal credit markets based on a review of the literature. Author argues that growing commercialization of agriculture seems to have given a new impetus to the informal credit market which plays a complementary role to formal finance. Author suggest that it would be more fruitful to develop inter-linkages between the formal and the informal financial markets to expand the frontiers of finance.

Part 3 of the volume contains seven papers on rural workforce and structural change. The first paper in this part deals with the changes in the structure of rural workforce in UP. The paper indicates that a definite but moderate shift in favour of non-agricultural rural workers in UP has occurred. The level of agricultural prosperity exercises a positive and strong influence on the growth of non-farm employment. Inequalities in income/expenditure and land distribution are also positively, though not strongly, related to non-farm employment at the state level. The second paper in this section presents some stylized facts and hypotheses about the temporal and sectoral shifts in the rural workforce at all India levels and for major states during the period 1983 to 2004-05. The paper shows that major changes in the structure of non-farm sector have taken the place in recent

years. There are significant variations in the level of rural diversification across states. The driving force in the process of structural shifts has been the explosive growth of the construction section which accounted for 47.4 percent of the total shift in workforce structure. The third paper examines the livelihood options in the rural non-farm sector in dry land regions. The paper highlights the pattern of rural non-farm employment in different states and the changes in the same over time. Paper suggests that scientific management and development of livestock resources needs to be promoted in a big way in these regions. Besides, improvement in rural infrastructure in terms of roads, electricity, and credit facilities is a necessary condition for the growth of both the rural farm and non-farm sectors. The paper argues that the focus of government policies should shift from protection to the development of small enterprises as well as regulatory framework need to be simplified and rationalized. The paper suggests that Public-Private Partnership models have to be promoted for the promotion of rural industries and crafts. The fourth paper in this section examines the relationship between land distribution, agricultural growth, and rural poverty. The paper argues that the inverse relationship between land size and productivity no longer prevails in all the states. The paper finds that there is a definite correlation between high proportion of marginal holdings and rural poverty at the state level. It is argued that a big shift of workers from agricultural to non-agricultural activities is required to alleviate rural poverty and ensure development. The fifth paper in this section looks at some aspect of structural change in the rural economy at the national level in recent years. It shows that the process of urbanization as well structural change in the rural economy in India has been quite slow in contrast with the rapidly growing economies of far eastern countries which have witnessed a sharp change in the structure of their employment. The analysis reveals that the process of shift in the employment structure in India has been rather modest and even now over two third workers are employed in major factors contributing to low labour productivity in agriculture and high incidence of rural poverty. The next paper deals with the growth of rural non-farm sector in UP based on secondary data. The analysis has revealed a modest growth of rural non-farm sector in Uttar Pradesh. The major contributory factors behind this trend have been the process of agricultural modernization and the expansion of government employment especially during the seventies and the eighties. The regional dynamics of growth also appear to be different in different parts of the state. The last paper in this section probes the dynamics of rural non-farm enterprise (RNFE) sector based on a primary survey conducted in two villages each from western and eastern regions of UP. The survey reveals that there has been a gradual shift in workers away from the agricultural sector during the past decade in different parts of the state. The major components of RNFE are non-agriculture labour, self-employed in non-agriculture and services. Construction activities have attracted a large number of workers from the agricultural sector. The findings of the survey support the hypothesis that it is mainly push factors which are forcing the agricultural workers to find employment in non-farm activities to supplement their income.

The fourth and final part of the volume contains three papers on the rural unemployment situation. The recent trends in rural and agricultural employment are presented in the first paper and suggest future strategies regarding generating rural employment. The paper emphasizes the need to adopt region-specific employment strategies because the potential for employment generation differs from region to region. The paper suggests that employment planning has to be fully integrated with human resource development planning, which should aim at improving the quality of the human resource and enhance its employability through formal and informal programs of vocational training, importing of new skills, and upgrading the old skills. This is needed not only to generate more employment but also to raise the productivity of the workforce. The second and third papers in this part take a critical look at the unemployment situation in Uttar Pradesh and employment generation programs. The results reveal that the National Sample Survey (NSS) data

do not reflect a high incidence of unemployment in UP. The underemployment rates are distinctly higher in the urban area as compared to the rural areas. The major problem seems to be a lack of regular employment opportunities and unemployment in the sense of unutilized labour time and inadequate levels of income. The paper suggest that the employment generation strategy should take into account the needs of the specific groups and areas particularly women and educated youth.

In this book, the author has presented his independent research work on land reforms and rural development in UP published during the period of six decades or so based on data of that study period, which has provided limited scope to keep the flow of discussion on the topic of the book. Overall, the book is a significant contribution to the literature on land reforms and rural development. The book is very good reading material for research scholars and policy-makers interested in the field of land reform and rural development.

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CORRESPONDENCE

હિતેષ પંડ્યા
મા. મુખ્યમંત્રીશ્રીના
અધિક જનસંપર્ક અધિકારી

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apro/ma/2021/12/29/rs

Dt. 29-12-2021

Snehi Shree Subrata ji,

Namaskar.

We have received **Volume 50, July-December 2020 edition Number 2** of the **Anvesak** released by the **Sardar Patel Institute of Economic and Social Research (SPIESR), Ahmedabad**. The same has been put before Honourable Chief Minister Shri Bhupendrabhai Patel. Thank You.

(Hitesh Pandya)

To,
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CORRESPONDENCE

I would like to record my personal appreciation of the last issue of *Anvesak*, i.e., ANVESAK @ 50. It's a Collector's item.

The credit goes to Professor Niti Mehta and Dr. Subrata Dutta.

Yoginder Alagh
Professor Emeritus
Sardar Patel Institute of Economic and Social Research
Ahmedabad, India

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Dear Dr. Dutta:

Hearty Congratulations on account of *Anvesak* 50th anniversary issue. A memorable milestone indeed. It requires commitment, continuous and consistent efforts to bring out a journal of such a standard. Many congratulations to you and team ANVESAK.

With regards,

N. Lalitha
Professor
Gujarat Institute of Development Research
Gota, Ahmedabad 380060, India

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Dear Dr. Dutta:

Greetings! Many thanks for sharing the special issue (50/2) of *Anvesak* with me. I wish all the very best for its future contributions.

Warm regards,

Keshab Das
Professor
Gujarat Institute of Development Research
Gota, Ahmedabad 380060, India

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Dear Subrata,

Thanks for sharing the 50th anniversary issue of *Anvesak* with me. Congratulations with all that and the impressive contents of the issue you sent me and which I read with much interest.

Best,

Johan H.L. Oud
Associate Professor
Radboud University
Nijmegen, The Netherlands

CORRESPONDENCE

CONDOLENCE LETTER

On the sad demise of Prof. R. Radhakrishna, Eminent Economist, the Sardar Patel Institute of Economic and Social Research (SPIESR) joins the larger academic community in the country to pray for the departed soul.

Prof. Radhakrishna was a distinguished scholar, an outstanding academic leader and a warm and affectionate human being. He was an eminent development economist who made significant contributions in socially relevant areas of enquiry. He is known for his seminal contributions in the areas of complete demand systems, quantitative economics, wellbeing, agriculture and food security, and rural development. Having done his doctorate under the Late Professor P.N. Mathur, Prof. Radhakrishna served at SPIESR from 1971 to 1980. In Ahmedabad, his studies on acreage response models, calorie demand functions, income distribution, levels of living and poverty, price response studies in input-output framework, tax revenue projections and regional science are well recounted. His regular contributions to the SPIESR journal *Anvesak* enriched it and lent it academic eminence. His affection for the Institute was apparent from the fact that despite the pressure of official engagements and responsibilities, he always found time to extend his support in the form of academic meetings and seminars, faculty development activities, etc. He provided guidance to many students and young researchers who continue to fondly acknowledge Prof. Radhakrishna's role in their academic accomplishments. Prof. Radhakrishna's contribution to the growth of several Institutions such as Indira Gandhi Institute of Development Research (IGIDR) and Centre for Economic and Social Studies (CESS) is also noteworthy, and he was also associated with several academic and research institutions in the capacity of Chairman or Board Member. He chaired a number of official committees of national and international significance.

Prof. Radhakrishna always showed a deep sense of caring for those he came across. His commitment as well as affection for SPIESR is recalled by its faculty members and staff. The SPIESR community believes that, along with Prof. Radhakrishna's academic excellence, his innate humaneness and concern as always reflected in his dealings with people need to be emulated by scholars in social sciences in the times to come.

The SPIESR staff community led by Prof. Y.K. Alagh expresses deepest condolences on the passing away of Prof. Radhakrishna and pray to the almighty for granting strength to his family to bear this loss.

Niti Mehta
Professor and Acting Director
Sardar Patel Institute of Economic and Social Research
Ahmedabad, India

February 11, 2022

Instructions to Authors

Manuscripts for contribution should be mailed to the Editor. They should be typed in double space, using Times New Roman font in 12 point. A manuscript must be accompanied with an abstract (100-125 words), five keywords, authors' institutional affiliations, complete addresses of authors, their contact numbers and their active email IDs for communication on a separate page (i.e. first page). The length of the paper should approximately be between 6000 and 8000 words. The paper should be accompanied by a declaration as follows:

"I declare that the paper is original and has not been simultaneously submitted elsewhere for publication."

Figures and Tables should be kept to the minimum. All Figures (including graphs and maps) should be produced in black colour and be in our journal's printable format. Tables and figures should not exceed the A-4 size format of a page. A large table could be broken into small tables for easy accommodation. All numbers and numerical figures in tables and graphs should be clearly visible. The equations (if any) should be composed in "MS Word equation editor".

For more detailed guidelines, please see the "Guidelines for Contributors" given in the 'Journal' section on our website: www.spiesr.ac.in. Manuscripts should be sent to: anvesak@spiesr.ac.in (manuscripts sent to other email IDs will not be acknowledged and considered). Authors should be aware of the fact that some fraudulent publishers are bringing out fake *Anvesak* journals, illegally using our ISSN Number. Publications in fake *Anvesak* journals shall not be considered as legitimate publications.

*Due to the COVID-19 pandemic, the publication of *Anvesak* has been delayed.

— Team Anvesak
March, 2022