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Publication of ***Artha Beekshan***, the quarterly referred journal of Bangiya Arthaniti Parishad, that is, the Bengal Economic Association, is one of the most important academic activities of the Association. The present volume, **Volume 29, No. 2 &3** of the Journal, is published containing the selected papers contributed by scholars for 40th Annual Conference. We are thankful to the authors and members who have helped in one way or other in the preparation of this volume.

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Minimum Acceptable Diet and Child Undernutrition in India

Basudha Mukhopadhyay[1]

Abstract:

Background: For the purpose of child's optimal growth and development, adequate *nutrition of the child is of utmost important. But the economic condition of a greater number of our populace is quite poor and as a result is unable to afford even the least expensive balanced diet. Minimum acceptable diet is anticipated to contribute to good child health of a child. Due to varied levels of availability and individual preferences for food, diversity in minimum acceptable diet varies across household. The present paper is an attempt to examine the association between Minimum Acceptable Diet and other socio demographic factors on child undernutrition in India.*

Methods: *This study used a nationally representative dataset from National Family Health Survey- 3 and 4. It uses multi-level logistic regression to examine the relationship between Minimum Acceptable Diet and child undernutrition parameters controlling for other covariates.*

Main Findings: *The result shows that Minimum Acceptable Diet, agro-climatic regions, regular income of the household, place of delivery of the child, mother sufferering from anaemia and other child-level variables are important predictors of child undernutrition.*

Conclusion: *There is still a need for following the WHO guidelines regarding Minimum Acceptable Diet. Provision of antenatal care and improved sanitation and proper drinking water is likely to bring down the percentage of undernourished children in our country.*

Key words: Stunting, Wasting, Underweight, Multi-level Regression.

JEL Classification Code: H51; I15: J13; O53

I. Introduction:

Undernutrition is undeniably the biggest public health problem in our country today.

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The economic condition of a greater number of our populace is quite poor and as a result is unable to afford even the least expensive balanced diet. A number of nutrition and diet surveys carried out among different groups of population and different parts of our country have approved the existence of widespread undernutrition among the poorer sections of our populace. The 2014-15 National family health survey have found that thirty-eight percent of children under age five years are stunted (short for their age); twenty-one percent are wasted (thin for their height); thiry-six percent are underweight (thin for their age); and 2 percent are overweight (heavy for their height). Children born to mothers with no schooling and children in the lowest wealth quintile are most likely to be undernourished.

For the sake of child's optimal growth, health and development, adequate nutrition from the period in the mother's womb to two years of age is essential. There is a universal consensus on the importance of infant and child feeding (IYCF) - meaning breastfeeding and complementary feeding as an important determinant of child nutrition. The global public health recommendations suggest that along with disease prevention strategies, complementary feeding interventions are most effective in reducing undernutrition. It states that an infant should be exclusively breast fed for the first six months of life and thereafter timely, adequate and appropriate complementary foods should be introduced to the child's diet while they continue breastfeeding up to two years of age and beyond.

Absence of dietary diversity is a problem and is critical for young children during their complementary feeding period. This is because during this period, children require food containing essential nutrients for normal physical and mental development. Those who eat foods from four or more food groups daily have the minimum recommended dietary diversity as they are assumed to consume at least one animal-source food and at least one fruit or vegetable, in addition to a staple food [World Health Organization: Indicators for assessing infant and young child feeding practices. Conclusions of a consensus meeting held 6–8 November 2007. Washington, DC, USA; 2008.].

But, for many children from poorer households this minimum is not achieved. There are several studies conducted in developing countries which have identified that poverty, low level of parental education and rural place of residence contributes to the prevalence of undernutrition in children. Along with the socioeconomic factors, dietary diversity is also associated with the nutritional status of young children (Taren & Chen, 1993; Hatloy et al., 2000; Arimond & Ruel, 2002; Onyango et al., 2008). The importance of dietary diversity for child growth and development is recognized by the World Health Organization. It included 'diversity in complementary feeding' as a specific recommendation for breast-fed children aged 6–23 months.

The multi-dimensional child feeding practices undergoes rapid change within short-intervals in their first years of life. Exclusive breastfeeding is considered as a single best indicator of child feeding practices. Other dimensions of child feeding practices are introduction of complementary foods, and optimum quantity and quality of the foods consumed.

In 2008, WHO published the document Indicators for assessing infant and young child feeding practices which includes eight core and seven optional indicators. The core list includes early initiation of breastfeeding, exclusive breastfeeding under 6 months, continued breastfeeding at 1 year, introduction of solid, semisolid or soft food, minimum dietary diversity (a proxy for adequate micronutrient-density of foods and liquids other than breast milk), minimum meal frequency (a proxy for adequate energy intake from non-breast milk sources), and minimum acceptable diet among breastfed and non-breastfed children aged 6–23 months.

The upsurge in the recognition of minimum acceptable diet as an important element in healthy nutrition calls for more research in this area. Minimum acceptable diet is anticipated to contribute to good child health of a child. Good health is reflected by good child growth. It is observed in few studies that apart from poor nutrition, inadequate hygiene, living conditions, income and medical care can lead to infection and disease [14]. These infection and diseases could have been prevented if proper medical care and hygienic living condition was ensured. Though stunting, wasting and underweight are observed, the causes of these undernutrition variables are varied and interconnected. Thus the state of a child's health is often a result of the interactions of factors at the individual and family levels such as access to food, feeding patterns, and factors at the social and physical environmental levels, such as access to health care and to clean water.

Due to varied levels of availability and individual preferences for food, diversity in minimum acceptable diet varies across household. Climatic condition of a locality, local food production practices affect the consumption pattern and availability of foodgrains. Studies have identified food availability and household –level consumption. But the role of agro-climatic region as a possible determinant of minimum acceptable diet has been less explored.

Thus, much remains to be understood about the role of agro-climatic regions in child dietary diversity, and its relationship with stunting, wasting and underweight, and the role played by other individual, household and state level factors. This paper presents an analysis specific to India, using the NFHS data (NFHS 3 and NFHS 4) and undernutrition parameters.

The study seeks to shed light on one specific objective: to explore the relationships of Minimum acceptable diet to childhood undernutrition parameters for different states in

India, when control variables related to maternal, child and household characteristics are accounted for.

II.Methodology

Data

This study used a nationally representative dataset from National Family Health Survey- 3 and 4. These are publicly available data. These data set was chosen because they are the most recent data available, and most importantly, they contain the necessary child feeding variables needed for this analysis. The two NFHS surveys have been conducted under the stewardship of the Ministry of Health and Family Welfare (MoHFW), Government of India. NFHS-3 and 4 was designed to provide estimates of important maternal and child health indicators including nutritional status for young children (under five years for NFHS-3 and 4), following standard anthropometric components. The surveys were conducted following stratified two-stage sampling technique. Details on the sampling procedure can be found at IIPS, 2007 and 2014 []. The 2001 and 2011 census served as the sampling frame for the selection of PSUs.

Study Sample

Of the total 46,665 children from NFHS-3 and 2, 19,796 children from NFHS 4, a subset of 41,066 children and 1, 91,200 respectively was considered, from 29 states in India. Five thousand and six hundred children (12%) from NFHS 3 and twenty eight thousand five hundred and seventy-four children (13%) were excluded who were missing either antropometric data or were not included among the 29 states considered for the study. As earlier, three indices of nutritional status were calculated for children: height-for-age, weight-for-height and weight-for-age. The first indicator, that is, height-for-age look into linear growth retardation and is a signal for chronic undernutrition. The weight-for-height indicator juxtaposes body mass to body lenghth and indicates acute undenutrition. The weight-for-age is a composite measure of both chronic and acute undernutrition.These three indices of nutritional status are expressed in z-scores from the median of international reference population (WHO-NCHS reference population).

Methods used

This study uses one analytical methods for exploring the relationship between Minimum Acceptable Diet and child undernutritional parameters controlling for other covariates.

III.Nutritional Status and Child Feeding Practices

To analyse the objective, the percentages of undernutrion parametes namely, stunting, wasting and undereweight are obtained for different states in India from the unit –level data separately for NFHS 3 and NFHS 4. The percentages of the parameters of complementary feeding practices were then obtained for the different states. The parameters includes, percentage of children fed with breastmilk, milk or milk products, percentage of children receiving minimum dietary diversity, percentage of children receiving Minimum Meal frequency and lastly percentage of children fed with Minimum Acceptable Diet. These values calculated for height-for-age, weight-for-height and weight-for-age and the various determinants of complementary feeding practices, helps us to understand the relative position of children of different states of India for NFHS-3 and NFHS-4.

Multi-level Regression

The NFHS data is of stratified nature where the children are nested into mothers, mothers are nested into households, households into Primary Sampling Units (PSUs) and PSUs into states. Hence a multi-level regression analysis was used to estimate the probability of child undernutrition.

Here the individual demographic and health attributes (e.g., age, gender, birth order, size at birth, etc.) are the factors which are independently determined for every child. But, it is anticipated that siblings share certain common characteristics of the mother and the household and children from a particular community or village have in common community level factors. So, the outcome variable may be correlated at the cluster levels. These results to an estimation problem when we employ conventional OLS estimators, which gives efficient estimates only when the community level covariates and the household level covariates are uncorrelated with the child and maternal effects covariates. To estimate models related to nutrition, researchers used fixed effects models and control for unobservable variables at the cluster level. But this leads to the difficulty, that in the process of transforming the variables, apart from the dummy variables, the time-invariant explanatory variables (e.g. caste, gender, parental education, etc) get wiped out from the model. Also differencing leads to removal of long-run effects in the variables are thereby we are left with only the short-run effects in the variables. Again the disturbance term of the fixed effect model suffers from autocorrelation problem. Thus, to understand the impact of minimum acceptable diet on child undernutrition, we adopt an alternative approach of using multilevel model.

Multilevel regression analysis was performed with individuals and households within the community, and community within the states. Minimum acceptable diet is used as indicators of dietary diversity and its association is examined with nutritional status of children. Here we test the variance component (or random intercept) model. This model has the advantage of correcting the correlated observation in the cluster. This is done by introducucing a random effect at each cluster. That implies that factors within the same cluster will have shared random intercept. Multilevel logistic regression models were evaluated with a log-link function to analyse the factors associated with stunting, wasting and underweight for children aged 6–59 months. Multilevel regression coefficients were estimated using Markov Chain Monte Carlo (MCMC) estimation strategies. Here we examine two clusters, community and household. This is because NFHS gives information on children of one mother chosen from a particular household. Thus we have,

$$\mathbf{Y_i = \alpha\alpha + \beta x_{ij} + \delta_i + \mu_{ij}}$$

$$\boldsymbol{ln[\pi_{ij}/1-\pi_{ij}] = \alpha\alpha + \beta x_{ij} + \delta_i + \mu_{ij}}$$

where $Y_i = \ln[\pi_{ij}/1-\pi_{ij}]$ is the logit in which π_{ij} is the probability of stunting/wasting / underweight for the child(ren) from the jth household in the ith communi**ty.**

The term x_{ij} are vectors of covariates at child, household and community level. δ_i and μ_{ij} are the unexplained residual terms at community and household level.

Here 'i' is a random community effect denoting the deviation of community i's mean z-score from the grand mean, 'j' is a random household effect that represents deviation of household ij's mean z-score from the ith community mean. The error terms δ_i and μ_{ij} are assumed to be normally distributed with zero mean and variances σ^2_c and σ^2_h respectively. These terms are non-zero and estimated by variance components models.

To assess the appropriateness of the multilevel models, we test whether the variances of the random part are different from zero over households and communities. The estimated vales from the models are used to assess the Intra Class Correlation (ICC). ICC shows the extend of correlation of child undernutrition within household and communities, before and after we have accounted for the observed effects of covariates xij. A notably significantly different ICC from zero suggests appropriateness of random effect models.

In the variance component model a random intercept is initiated at each level or cluster assuming a constant effect of each of the covariates (on the outcome) across the clusters.

The analysis is presented in five models. Model 1 is the null model where the dependent variable is the probability of stunting, wasting and underweight for children aged 6-59 months with no covariates. In the latter models along with the minimum acceptable diet score and agro-climatic zones, other covariates are introduced in a stepwise manner. Model 2 incorporates the agro-climatic zones as covariates. Model 3 incorporates household specific variables. Model 4 introduces mother specific variables. Model 5 takes into account the child specific variables and model 6 is the full model which introduces state–specific variables along with other covariates. The objective of introducing the covariates in a phased manner is that it is easy to understand the separate role of minimum acceptable diet and agro-climatic zones on the probability of whether the child is stunted, wasted or underweight.

Variables in the regression model

Dependent Variable

We attempt to model the probability of nutritional status for the child(ren) from the jth household in the ith community. This status was defined in accordance with the WHO indices which indicates whether a child was well-nourished or undernourished: underweight (with weight-for-age z-score of -2, or lower); stunted (with a height-for-age z-score of -2, or lower); wasted (with a weight-for-height z-score of -2, or lower).

Independent Variable

Complementary feeding

Following the standard approach, of assessing minimum acceptable diet, the paper uses the criterion given in NFHS4 and NFHS 3.

The minimum acceptable diet score was calculated for a child aged 6-23 months by taking a summation of the following food groups

(a) The infant should receive two or more feedings of commercial infant formula, fresh tinned and powdered animal milk and yogurt irrespective of whether she is breastfed or not ;

(b) She should receive minimum dietary diversity which includes (i) milk other than breast milk, cheese or yogurt or other milk products; (ii) food from grains or roots porridge or gruel and fortified baby food; (iii) fruits and vegetables; (iv) other fruits and vegetables rich with vitamin A; (v) eggs; (vi) meat, poultry, fish, shellfish; (vii) beans, peas, lentils or nuts ;(viii) foods prepared from oil, fat ,ghee or butter;

(c) Receives minimum meal frequency which comprises

(i) solid or semi-solid food at least twice a day for infants 6-8 months and at least three times a day for 9-23 months children who are breastfed ;

(ii) and receiving solid or semi-solid food or milk feeds at least four times a day for non-breastfed children.

Minimum Dietary diversity illustrates having adequate micronutrient-quantity of foods. It means feeding the child with the above food groups.The food groups are the better quality diets for both breastfed and non- breast fed children.

The child's energy requirement is represented by minimum meal frequency .For newborn baby and young children, this index gives an idea on how much is the energy requirement of the child. For non-breast fed child the index gives a better idea about the energy requirements. But for breast-fed child the index tells about how much extra energy the child needs in spite of breast feeding.

The 2015-16 NFHS tells us that about 94 percent of Indian children age 6-23 months received breastmilk, milk, or milk products (2+ times) during the day or night before the interview . It reports that 20 percent of breastfed children had an adequately diverse diet. This is because they had been given foods from the appropriate number of food groups, while 31 percent had been fed the minimum number of times appropriate for their age. The feeding practices of only 9 percent of breastfed children age 6-23 months meet the minimum standards for all IYCF feeding practices. Ten percent of all children age 6-23 months were fed the minimum acceptable diet.

Agro- climatic regions

The states in India are classified by agro-climatic regions. The classification is done based on climatic conditions of the state. Since district data are available for NFHS 4, hence the agro-climatic zones are considered districtwise as given by the planning commission. It includes the Western Himalayan Region which includes 39 districts of Himachal Pradesh, Jammu And Kashmir and Uttaranchal states of India. The Eastern Himalayan Region includes 79 districts from Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura and 3 districts of West Bengal. The Lower Gangetic Plains comprises of 15 districts of West Bengal. The Middle Gangetic Plains comprises of 60 districts of which 23 districts are from Uttar Pradesh and the rest are from Bihar. The Upper Gangetic Plains consists of 40 districts from the state of Uttar Pradesh. The Trans Gangetic Plains comprises of 48 districts from Delhi, Haryana, Punjab, Chandigarh and 2 districts from Rajasthan. Here we take 47 districts and exclude one district of Chandigarh as it is not considered in this study. The Eastern Plateau & Hills Region comprises of 57 districts from Chattisgarh, Jharkhand, 3 districts of Maharashtra, 15 districts from Orissa and 1 district from West Bengal. The Central Plateau and Hills Region comprises of 57 districts which includes 30 districts from Madhya Pradesh, 20 districts of Rajasthan and 7 districts of Uttar Pradesh. The Western Plateau and Hills Region comprises of 41 districts of which 15 districts are from Madhya Pradesh, 25 districts are from Maharashtra and 1 districts is from Rajasthan. The Southern Plateau & Hills Region comprises of 48 districts which includes 41 districts of Andhra Pradesh, 21 districts of Karnataka and 13 districts are from Tamil Nadu. The East Coast Plains & Hills region consists of 43 districts which comprises of 9 districts of Andhra Pradesh, 15 districts of Orissa, 15 districts of Tamil Nadu and 4 districts of Pondicherry. Here, only 34 districts are considered as 4 districts of Pondicherry are not included since Pondicherry is not a part of the study. The West Coast Plains & Ghats Region is comprised of 30 districts which include all the districts from Goa, Kerala, 6 districts each from Karnataka and Maharashtra and 2 districts from Tamil

Nadu. The Gujrat Plains and Hills Region consists of 28 districts from Gujrat, Dadra and Nagar Haveli and Daman and Diu. Again 25 districts are considered here as 2 districts from Daman and Diu and 1 district from Dadra and Nagar Haveli are excluded as these two states are not a part of the study. The Western dry region consists of 9 districts from the state of Rajasthan. The Island Region consists of 3 districts from Andaman and Nicober Islands and Lakshadeep. This climatic zone is not considered as these two states are not a part of the study.

But District identifiers are not available for NFHS-3 data. Hence for NFHS 3, the classification of the states is done on the basis of that climatic condition that is most applicable for the state. That means, if a state falls under two agro-climatic zones, then that state is classified in that region that covers the major part of the states. The Western Himalayan Region consists of the states of Himachal Pradesh, Jammu And Kashmir and Uttaranchal. The Eastern Himalayan Region includes the states of Arunachal Pradesh, Assam, Manipur, Mizoram and Nagaland. The states of Haryana and Punjab are included in Trans Gangetic Plain Region. The Lower, Middle and Upper Gangetic Plain Region comprised of the states of Uttar Pradesh, Bihar and West Bengal. The states of Chattisgarh, Jharkhand and Orissa are included in Eastern Plateau and Hills Region. Madhya Pradesh and Maharashtra are placed in Central and Western Plateau and Hills Region. The states of Andhra Pradesh, Karnataka and Tamil Nadu fall under the Southern Plateau and Hills Region. The West Coast Plains Region comprises of Kerala. The Gujrat Plains and Hills Region consists of the state of Gujarat. Since a major part of the state of Rajasthan fall under Western dry Region, it is considered as a separate region even though a few parts of Rajasthan fall under Trans Gangetic Plain Region and Central Plateau and Hills Region.

Other explanatory variables

The other considerable factors on child undernutrition indicators are chosen on the basis of available literature on the subject and as enumerated in the conceptual freamework of the study. Here we consider individual characteristics of the child as covariates of child undernutrition indicators. These covariates are child age (in months), sex of the child., previous birth interval and whether the child suffered from diarrhea as incidence of recent illness. The controls for mother-level variables incude: education of the mother in terms of years of education , place of delivery for the child of interest, whether the mother has received antenatal care, mother's status of anemia and for NFHS 4, whether the mother received the mother and child protection card. On the household level, except for the regions of residence, controls are included for place of residence, the source of drinking water, type of the toilet used by the household, sex of the household head and the number of children in the household. The state-level variables include whether the household owns a BPL card and whether the household has a regular income or not.

IV. Results of Multilevel Regression

In order to understand the effect of minimum dietary diversity and other socio-economic factors on child undernutrition by agro-climatic zones, six multilevel models are used.

The null model (Model 1) of NFHS 4, shows that there is significant variation in child undernutrition at community and household level with a total variance of 0.616 of (community and household), The Intra-class correlation coefficient presented in table 2 differ from zero. That implies that the odds of stunting in children are certainly correlated with households and communities. In NFHS 3, the total variance is 0.553 and the ICC coeffiecient differ from zero which suggest the same finding that the odds of child stunting is correlated with household and communities.

In Model 2 of NFHS 4, we find the effect of minimum acceptable diet and agro-climatic regions on the odds of child stunting. Children not receiving the minimum acceptable diet are more prone to stunting compared to children receiving minimum acceptable diet (OR=1.955). In NFHS 4, it can be seen that compared to West Coast Plain and Ghat Region, the children residing in other climatic zones are more likely to be stunted. Children from Upper Gangetic Plain (OR= 2.002) and Western Dry Region (OR=2.001) are at higher risk of stunting than children from West Coast Plain and Ghat Region. The reason may be that Upper Gangetic Plain consists the districts of Uttar Pradesh, and Western Dry Region consists districts of Rajasthan and these two states have high rates of stunting as observed earlier. Even, the odds-ratio of all the other agro –climatic zone regions shows significant risks of stunting. The significant values are observed for Lower Gangetic Region (OR=0.986), Middle Gangetic Region (OR=0.914),Trans-Gangetic Region (OR=1.251), Eastern Plateau & Hills Region (OR=1.213), Central Plateau & Hills Region (OR=1.005), Western Himalayan Region (OR=1.004) and Gujrat Plains and hills Region (1.023). When we consider the state –level variables, we can observe that households not having regular income are more vulnerable to stunting as compared to the households having regular income (OR=1.119). Again the intra-class correlation as depicted in Table 2 varies from zero, implying that the odds of child stunting are correlated with household and communities. When compared to null model, it can be observed that the measures of variation remained significant across communities and households and the Intra-Class Correlations across households and communities are also significant and differs from zero. The ICC at the household level shows higher correlation than in the case of communities.

In model 3, of NFHS 3 we have included the household level variables. After the inclusion of household level variables, it can be observed that the Southern Plateau and Hills Region (OR=0.412) and East Coast Plain and Hills Region (OR=1.200) shows higher risks of stunting compared to West Coast Plain & Ghat Region. The other climatic Regions loses their significance once the household level variables are introduced. The children not having access to minimum acceptable diet are at a higher risk of being stunted compared to the priviledged ones.(OR=0.952). It can be observed that rural place of residence, (OR=1.299), not having access to improved source of drinking water, (OR=1.845) and not having access to flush toilets (OR=0.860) have higher risk are vulnerable to suffer from stunting. Again, families with female head (OR=1.188) and more than two number of children (OR=0.989) significantly contribute to the risk of stunting. Households having regular source of income (OR=1.188) are better off than the ones with irregular income earnings. Since the Intra Class Correlation is significant and differs from zero, it can be easily inferred that that there is correlation across households and communities. If we look at the Intra Class Correlation as depicted in Table 2, it can be interpretated that correlation at the household level is higher compared to the communities.

In the model 4 we introduced the mother level variables along with household level covariates. Here again the children not following the norms of Minimum Acceptable Diet has more probability of stunting than the ones with Minimum Acceptable Diet (OR=1.949). Among the agro-climatic region, it is observed that Eastern Himalayan Region (OR=0.056) and Eastern Plateau & Hills Region (OR=2.525), significantly affects the probability of stunting. The children in Eastern Plateau & hills Region has higher probability of stunting than the West Coast & Ghat Region. This region consists of the states of Chattisgarh, Jharkhand, Maharashtra, Orissa and 1 district of West Bengal. It is already shown that Jharkhand has an average of 40 to 49 percent of stunting, whereas the states of Chattisgarh, Maharashtra, Orissa and West Bengal have on an average 30 to 39 percent of stunting. It can also be observed that among the household level covariates, the children from the rural areas (OR=1.286) , the children not having access to improved water facilities (OR=1.841), the children not having access to improved variety of toilet facilities (OR=0.862), when the head of the household is female (OR=1.179) and when the household having more than two children (OR=0.965) have significant higher probability of being stunted. Among the mother –level covariates, it can be seen that the children of mothers with lower level of education (OR=0.094), not having access to better facility of delivery system (OR=0.015), poor antenatal care (OR=0.006), suffering from anemia (OR=0.875) and the children of mothers not having access to Mother and Child Protection Card (OR=0.236) are more vulnerable to suffer from chronic undernutrition. It has been discussed in the literature that the association between maternal education and child under nutrition is complex. While better education increases the ability of the mother to take better care for her child, it may affect the time she can offer to take care of the child. As a result, since educated mother are likely to be involved in economic activities away from home, it may affect the wellbeing of the child and accelerates the rate of lower nutritional status.

Among the state level factors, again it shows that families not having access to regular income (OR=0.118) are more prone to stunting and there is a significant association between per capita net state domestic product and chronic undernutrition.

Selected Child-level covariates are included in model 5 which is also the full model. As before, the children not having access to Minimum Acceptable Diet (OR=1.951) are more vulnerable to the risk of being stunted. Again, same as earlier models it is observed that children residing in Southern Plateau & Hills Region and East Coast Plains & Hills Region and Western dry Region are more to stunting compared to children residing in West Coast Plain & Ghat Region. Children residing in rural areas not having access to improved source of water and born to anaemic mothers are found to be significant predictors to stunting. Children from educated mothers and children born at proper health facility are less likely to affect the odds of child stunting. Among the child level covariates, children more than one year of age (OR=1.784(p value less than 0.05)) and those who suffered from recent incidence of diarrhoea (OR=1.333) are likely to be more vulnerable to child stunting. Looking at the state-level covariates it can be said that household with irregular income and Per Capita NSDP significantly affect the odds of child stunting.

Table 1: Multi level regression on the association between Minimum Acceptable Diet and other contextual factors on child stunting anong children less than 5 years of age in India in 2014-15

	Model 1	Model 2 CI	Model 3 CI	Model 4 CI	Model 5 CI
Minimum Acceptable Diet Yes (Ref.) No		1.955*** (1.45,3.99)	1.952*** (0.26,3.62)	1.949*** (0.23,3.36)	1.951*** (0.65,1.86)
West Coast Plain & Ghat Region (Ref.)					
Eastern Himalayan Region		0.025** (0.97,3.65)	1.023	0.056* (0.32,2.12)	0.002
Lower Gangetic Plain		0.986*** (0.45,1.21)	0.984	0.977	0.965

Middle Gangetic Plain		0.914** (0.85,3.67)	0.512	0.515	1.002
Upper Gangetic Plain		2.002*** (1.02,2.77)	1.225	1.245	1.065
Trans Gangetic Plain		1.251** (1.06,4.66)	1.141	1.456	1.009
Eastern Plateau &Hills Region		1.213** (1.06,2.87)	2.209	2.525** (1.53,6.12)	2.056
Central Plateau & Hills Region		1.005*** (0.41,6.02)	1.015	1.176	1.035
Western Plateau & Hills Region		0.974* (0.21,3.56)	0.951	1.897	1.022
Southern Plateau & Hills Region		0.459** (0.85,4.91)	0.412** (0.25,1.25)	1.228	1.008** (1.02,2.41)
East Coast Plains & Hills Region		0.602** (0.51,2.41)	1.200* (0.36,5.23)	0.895	1.045* (0.52,3.96)
Western Himalayan Region		1.004** (1.52,4.32)	1.012	1.245	1.099
Gujrat Plains & Hills Region		1.023* (1.20,3.55)	1.034	2.274	1.002
Western Dry Region		2.001** (1.81,4.51)	2.041	1.986	1.083* (0.56.5.31)
Place of residence Urban (Ref.) Rural			1.299** (0.94,3.99)	1.286** (0.89,3.95)	1.279* (0.01,3.55)
Source of drinking water Improved (Ref.) Not improved			1.845** (0.51,2.41)	1.841** (0.21,2.95)	1.842* (0.06,3.96)

Type of toilet (.Flush(Ref Other			*0.860 (0.53.3.17)	*0.862 (0.49,3.12)	0.861
Sex of house-hold head Male (Ref.) Female			1.188** (0.63,2.11)	1.179** (0.99,3.01)	1.171
Number of children <5 1 (Ref.) 2 ≤			0.989* (0.22,3.36)	0.965* (0.39,2.97)	0.962
Education of mother None (Ref.) Prima-ry Secondary Higher				0.686*** (0.19,1.53) 0.511*** (0.02,1.96) 0.094*** (0.17,1.95)	0.641*** (0.21,1.39) 0.501*** (0.46,1.83) 0.095*** (0.18,1.86)
Place of De-livery Home (Ref.) Health Facility				0.015*** (0.03,1.99)	0.022*** (0.03,1.89)
Antenatal care-No (Ref.) Yes				0.006** (0.01,1.68)	0.002** (0.01,1.61)
Suffers from Anemia No (Ref.) Yes				0.875*** (0.55,2.18)	0.868*** (0.65,2.01)
Mother and Child Protec-tion Card No (Ref.)Yes				0.236** (0.06,3.01)	0.233** (0.05,3.22)

Age of the child (months) 6-8 (Ref.) 9-23 24-35 36 ≤					1.485*** 1.784*** 1.655***
Child diarrhea No (Ref.) Yes					1.133*
Previous Birth Interval <2 years (Ref.) 2years ≤					0.996**
Sex of child Male (Ref.) Female					1.016
Households with BPL card Yes (Ref.) No		0.395	0.394	0.395	0.395
Household with regular income Yes (Ref.) No		1.119** (0.09,3.33)	1.118** (0.09,3.33)	0.118** (0.09,3.33)	0.120** (0.09,3.33)

Percapita Net State Domestic Product		0.023* (0.01,4.12)	0.025* (0.03,4.25)	0.021* (0.03,4.16)	0.022* (0.03,4.12)
Random Effects					
Intra-class correlation					
(ρ(PSU	*0.064	*0.022	*0.020	*0.021	*0.024
(ρ(household	*0.099	*0.264	*0.241	*0.296	*0.287

*** p< 0.01, ** p< 0.05, *p< 0.10

In NFHS 3, Model 1 is the null model where no covariates are included. In model 2 the Minimum Acceptable Diet, all the Agro-Climatic Regions and the state fixed variables are included. As in NFHS 4, the children not having access to Minimum Acceptable Diet (OR=1.715)are more prone to the vulnerability of child chronic undernutrition. It can be observed that all the Regions significantly impact the odds of child stunting. Among the Regions the children residing in Eastern Plateau and Hills Region(OR=2.063) and Western Dry Region (OR=2.001) are prone to chronic undernutrition. Even children from Eastern Himalayan Region (OR=1.004), Trans Gangetic Region (OR=1.011), Central and Western Plateau & Hills Region (OR=1.018), Lower, Middle and Upper Gangetic Plain (OR= 1.745), East Coast Plains and Hills Region (OR=1.210), Western Himalayan region (OR=1.019) and Gujrat Plains & Hills Region (OR=1.010) show high probability of stunting. It is seen that the states which fall in these region show high percentage of children suffering from chronic undernutrition. It can be observed that the odds ratio of both NFHS 3 and 4 that the Western Dry Region consisting of the districts of Rajasthan , are same. That means that inspite of the fact that the rate of stunting in Rajasthan has come down , yet the children of this region are more vulnerable to the risk of stunting. The Eastern Plateau and Hills Region which comprises of the states of the states of Chattisgarh, Jharkhand and Orissa has the highest probability of their children being stunted. Shese are the states which show 40 to 49 percent of stunting and falls behind other Regions to follow the norms of Minimum Acceptable Diet. The Lower, Middle and Upper Gangetic Plain, comprising of the states of Uttar Pradesh, Jharkhand and West Bengal also shows the higher probability of stunting. In NFHS 4 , we have seen that the situation of children has not improved in the state of Uttar Pradesh and hence its children has high probability of stunting even after the government taking steps to reduce the rate of undernutrition. As in NFHS 4, the households not having regular income and the per capita net state domestic product significantly affects the the odds of stunting.

In the model 3 the household level variables are introduced in a phased manner. Here too, the children not following the norms of Minimum Accepatable Diet are more prone to the riask of stunting. Once the household level covariates are introduced few regions loses its significance. Among the regions,it is found that again it is the Eastern Plateau and Hills Region (OR=2.003), which shows a higher probability of stunting. The other climatic regions which significantly affect the odds of stunting are Eastern Himalayan Region, Lower, Middle and Upper Gangetic Plain, Central and Western Plateau and Hills Region and Western Dry Region. Among the household level variables the Rural Place of Residence (OR=1.299) has more probability to significantly affect the odds of stunting . The household not having access to improved source of drinking water, no proper toilet facilities and the household having female head of the family are also seen to significantly affect the odds of stunting. These results remain the same even in NFHs 4. The state level variables also significantly affect the probably of children being stunted.

After the introduction of mother level variables in model 4, all the agro-climatic regions loses its significance. But here too the the children deprived from the norms to be followed under Minimum Acceptable Diet (OR=1.849), are more vulnerable to the risk of child stunting. Like model 3, it can be observed that the rural place of residence (OR=1.286) and source of improved drinking water are important predictors to the risk of child stunting. It can be seen that in model 4, all the mother-level variables are found to significantly affect the probability of stunting. Among them, Mothers with higher level of education, mothers accruing the benefit of better healthcare facilities, mothers having access to have proper antenatal care for their children shows lower probability of their children being stunted. Again households with regular income and Percapita NSDP also shows significant association to the risk of stunting. The results did not differ much in NFHS 4.

The full model , introduces the child level covariates along with previous covariates. Here too, the children not accruing benefit of better feeding practices (OR=1.951) has higher probability of being stunted. Again, as in model 4, the agro-climatic regions loses its significance. The rural place of residence and houholds not having proper source of drinking water facilities shows significant association to child stunting. As in earlier models, mother with higher level of education and enjoying better healthcare facilities and ante-natal care positively and significantly affect the odds of stunting. As in NFHS 4, the children with more than one year of age, and those children who suffered from recent incidence of diarrhea (OR=1.133) are more vulnerable to the odds of child stunting. At the state-level, the households with regular income and per capita NSDP affect the probability of child stunting.

Table 2: Multi level regression on the association between Minimum Acceptable Diet and other contextual factors on child stunting among children less than 5 years of age in India in 2004-05

	Model 1	Model 2 CI	Model3 CI	Model 4 CI	Model 5 CI
Minimum Acceptable Diet Yes (Ref.) No		1.715*** (0.43,1.98)	1.742*** (0.32,1.56)	1.849*** (0.22,1.63)	1.951
West Coast Plain & Ghat Region (Ref.)					
Eastern Himalayan Region		1.004** (0.86,3.55)	1.053** (0.59,3.86)	0.956	0.914
Trans Gangetic Plain		1.011** (0.16,4.13)	1.201	1.456	3.241
Lower, Middle and Upper Gangetic Plain		1.745*** (0.26,1.97)	1.772*** (0.21,1.99)	0.777	0.755
Eastern Plateau &Hills Region		2.063** (1.54,3.10)	2.003** (1.95,3.63)	1.950	1.016
Central and Western Plateau & Hills Region		1.018*** (0.99,1.85)	1.001*** (0.52,1.96)	1.176	1.095
Southern Plateau & Hills Region		0.291** (0.16,2.52)	0.246	1.228	1.129
Western Himalayan Region		1.019** (0.84,1.92)	1.012	1.245	1.234
Gujrat Plains & Hills Region		1.010* (0.26,3.87)	1.001	2.274	1.002

Western Dry Region		2.001** (1.53,3.53)	1.995** (0.98,2.88)	1.986	1.083
Place of residence Urban (Ref.) Rural			1.299* (0.65,4.85)	1.286* (0.59,4.81)	1.279* (0.59,4.87)
Source of drinking water Improved (Ref.)Not improved			0.845* (0.061,2.96)	0.941* (0.046.2.85)	0.842* (0.051,4.12)
Type of toilet Flush (Ref.) Other			0.860* (0.024.3.01)	0.862* (0.054, 3.06)	0.861
Sex of household head Male (Ref.) Female			0.188* (0.021.2.99)	1.179	1.171
Number of children <5 1 (Ref.) 2 ≤			0.989	0.965	0.962
Education of mother None (Ref.) PrimarySecondary Higher				0.519*** (0.23,1.28) 0.482*** (0.21,1.65) 0.222*** (0.37,1.54)	0.511*** (0.05,1.29) 0.412*** (0.08,1.96) 0.202*** (0.18,1.65)
Place of Delivery Home (Ref.) Health Facility				0.005*** (0.01,0.99)	0.612*** (0.24,1.34)
Antenatal care-No (Ref.) Yes				0.046*** (0.21, 1.02)	0.535*** (0.12,1.61)

Suffers from Anemia No (Ref.) Yes				0.921*** (0.25,1.86)	0.815*** (0.21.1.33)
Age of the child (months) 6-8 (Ref.) 9-23 24-35 36 ≤					1.485*** (0.15,1.84) 1.784*** (0.14,1.96) 1.655*** (0.25,1.99)
Child diarrhea No (Ref.) Yes					1.133* (0.24,1.58)
Previous Birth Interval <2 years (Ref.) 2years ≤					0.824
Sex of child-Male (Ref.) Female					0.154
Households with BPL card No (Ref.) Yes		0.290	0.292	0.291	0.292
Household with regular in-comeNo (Ref.) Yes		0.127** (0.86,1.95)	0.127** (0.88,1.94)	0.127** (0.84,1.99)	0.127** (0.87,1.95)
Percapita Net State Domestic Product		0.031* (0.03,4.25)	0.037* (0.03,4.16)	0.035* (0.03,4.12)	0.032* (0.02,4.06)

Random Effect					
Intra-class correlation					
(ρ(PSU	0.071*	0.022*	0.020*	0.062*	0.021*
(ρ(household	0.125*	0.264*	0.219*	0.248*	0.296*

*** p< 0.01, ** p< 0.05, *p< 0.10

Considering all the models of multilevel analysis on wasting,in NFHS 4, it can be observed that children deprived of proper feeding and dietary practices are prone to the risk of child wasting. Among the agro-climatic regions, it can be seen from all the models that the children residing in Gujrat Plains and Hills Region are more vulnerable to acute undernutrition. Place of residence, improved source of drinking water, the type of toilet, mothers education, place of delivery, proper antenatal care, Mother and Child Protection Card are the significant predictors of child wasting. The age of the child, and the children suffering from recent illness due to diarrhea are the factors associated with child wasting. Among the state level factors, the children from households with regular source of income and Percapita NSDP are also found to be significantly influencing the odds of child wasting.

Table 3: Multi level regression on the association between Minimum Acceptable Diet and other contextual factors on child wasting among children less than 5 years of age in India in 2014-15

	Model 1	Model 2 CI	Model 3 CI	Model 4 CI	Model 5 CI
Minimum Acceptable Diet Yes (Ref.)No		1.015*** (1.54,3.19)	1.021*** (1.29,3.22)	1.020*** (1.26,3.19	1.021*** (1.24,3.09)
Western Himalayan Region (Ref.)					
Eastern Himalayan Region		0.016	0.015	0.019	0.015
Lower Gangetic Plain		0.095	0.096	0.096	0.096

Middle Gangetic Plain		0.011	0.011	0.012	0.012
Upper Gangetic Plain		1.035	1.032	1.033	1.033
Trans Gangetic Plain		1.022	1.023	1.026	1.026
Eastern Plateau &Hills Region		0.124	0.127	0.127	0.124
Central Plateau & Hills Region		0.85	0.85	0.86	0.87
Western Plateau & Hills Region		0.019	0.019	0.018	0.018
Southern Plateau & Hills Region		0.246	0.245	0.245	0.247
East Coast Plains & Hills Region		1.52	1.53	1.53	1.56
West Coast Plain & Ghat Region		0.056	0.054	0.052	0.062
Gujrat Plains & Hills Region		1.45* (1.20,3.55)	1.46* (1.21,3.88)	1.47	1.47
Western Dry Region		1.099* (1.01,4.25)	1.098* (1.01,4.31)	1.094	1.095
Place of residence Urban(Ref.) Rural			1.002* (0.94,3.99)	1.003* (0.89,3.95)	1.004* (0.81,3.95)
Source of drinking water Improved (Ref.) Not improved			1.055* (0.51,2.41)	1.051** (0.48,2.45)	1.052* (0.45,2.56)

Type of toi-letFlush(Ref.) Other			0.074* (0.53.3.17)	0.073* (0.49,3.12)	0.071* (0.45,3.15)
Sex of house-hold head Male (Ref.) Female			1.148	1.149	1.151
Number of children <5 1 (Ref.) 2 ≤			0.840	0.841	0.838
Education of mother None (Ref.) Primary Secondary Higher				0.285** (0.21,2.96) 0.452** (0.12,3.43) 0.124** (0.09,2.39)	0.277*** (0.20,1.41) 0.245*** (0.19,1.66) 0.196*** (0.17,1.89)
Place of De-livery Home (Ref.) Health Facility				0.019*** (0.01,1.54)	0.019*** (0.01,1.96)
Antenatal care-No (Ref.) Yes				0.546*** (0.42,1.46)	0.512*** (0.43,1.53)
Suffers from Anemia No (Ref.) Yes				0.563* (0.22,1.16)	0.599*** (0.34,1.01)
Mother and Child Protec-tion Card No (Ref.) Yes				0.211** (0.06,2.25)	0.219** (0.14,3.06)

Age of the child (months) 6-8 (Ref.) 9-23 24-35 36 ≤					1.213^{***} (0.52,2.65) 1.249^{***} (0.41,2.32) 1.301^{***} (0.59,2.86)
Child diarrhea No (Ref.) Yes					1.153^{*} (0.89,2.54)
Previous Birth Interval <2 years (Ref.) 2years ≤					0.456^{**} (0.54,2.57)
Sex of child Male (Ref.) Female					1.016
Households with BPL card No (Ref.) Yes					
Household with regular income No (Ref.) Yes		0.109^{**} (0.90,1.85)	0.110^{**} (0.92,1.84)	0.107^{**} (0.94,1.89)	0.110^{**} (0.97,1.95)
Percapita Net State Domestic Product		0.007^{*} (0.03,4.25)	0.007^{*} (0.03,4.16)	0.005^{*} (0.03,4.12)	0.001^{*} (0.02,4.06)

Random Effect					
Intra-class correlation					
ρ(PSU)	0.053*	0.041*	0.019*	0.027*	0.021*
ρ(household)	0.091*	0.277*	0.254*	0.265*	0.274*

*** p< 0.01, ** p< 0.05, *p< 0.10

When we look into all the models of wasting in NFHS 3, it can be seen that that proper feeding practices are an essential determinant to acute undernutrition among children. The odds ratios confirm that children deficient in diet are likely to suffer from this short-term undernutrition. It can be observed that after the incorporation of all the variables only Eastern Himalayan Region is significantly associated with the odds of child wasting. Thus the agro-climatic regions do not show much significance in predicting acute undernutrition among children. As before, the rural place of residence, not having access to improved source of water, mothers with lower level of education, mothers not having access to antenatal care, mothers who suffered from anemia, a child suffering from illness of diarrhea affect the risk of wasting in children. The average income of the household is an important predictor for the odds of child wasting, as is the percapita NSDP.

Table 4: Multi level regression on the association between Minimum Acceptable Diet and other contextual factors on child wasting among children less than 5 years of age in India in 2004-2005

Minimum Acceptable Diet No (Ref.) Yes		1.611*** (0.21,1.91)	1.619*** (0.24,1.92)	1.615*** (0.19,1.93)	1.615*** (0.21,1.99)
West Coast Plain & Ghat Region (Ref.)					
Eastern Himalayan Region		0.954* (0.23,3.96)	0.941** (0.51,3.51)	0.912** (0.39,3.52)	0.914** (0.42,3.53)
Trans Gangetic Plain		0.674	0.667***	0.677	0.664

Lower, Middle and Upper Gangetic Plain		0.457	0.449	0.418	0.419
Eastern Plateau &Hills Region		2.042	2.056	2.245	2.187
Central and Western Plateau & Hills Region		3.011^{**} (2.16,4.1)	2.201)	1.456^{*}	1.103
Southern Plateau & Hills Region		2.063	2.003	2.525	1.016
Western Himalayan Region		1.018	1.001	1.176	1.095
Gujrat Plains & Hills Region		0.765^{*} (0.06,4.21)	0.694^{*} (0.09,4.56)	1.897)	0.156
Western Dry Region		0.291^{**} (0.16,2.52)	0.246	1.228	1.129
Place of residence Rural (Ref.) Urban			1.299^{*} (0.65,4.85)	1.286^{*} (0.59,4.81)	1.279^{*} (0.59,4.87)
Source of drinking water Improved (Ref.)Not improved			0.845^{*} (0.21,4.55)	0.841^{*} (0.27,4.43)	0.842^{*} (0.23,4.10)
Type of toiletFlush(Ref.) Other			0.860	0.862	0.861
Sex of household head Male (Ref.) Female			1.188	1.179	1.171

Number of children <5 1 (Ref.) 2 ≤			0.989	0.965	0.962
Education of mother None (Ref.) Prima-rySecondary Higher				0.519* (0.05,3.98) 0.482* (0.06,3.56) 0.222* (0.04,3.63)	0.511* (0.06,3.88) 0.412* (0.04,3.55) 0.202* (0.36,5.12)
Place of De-livery Home (Ref.)Health Facility				0.655	0.612
Antenatal care No (Ref.) Yes				1.546*** (0.94,2.05)	1.535*** (0.95,2.01)
Suffers from Anemia No (Ref.) Yes				1.521*** (0.88,2.15)	1.515*** (0.86,2.18)
Age of the child (months) 6-8 (Ref.) 9-23 24-35 36 ≤					1.485 1.784 1.655
Child diarrhea No (Ref.) Yes					1.133* (0.21,3.65)

Previous Birth Interval <2 years (Ref.) 2years ≤					0.824* (0.12,3.99)
Sex of child-Male (Ref.) Female					0.154
Households with BPL card No (Ref.) Yes		0.116	0.119	0.121	0.121
Household with regular in-comeNo (Ref.) Yes		0.102** (0.77,1.91)	0.106** (0.81,1.90)	0.107** (0.74,1.83)	0.107** (0.72,1.81)
Percapita Net State Domestic product		0.026* (0.09,4.07)	0.024* (0.14,4.05)	0.025* (0.12,4.01)	0.026* (0.06,4.09)
Random Effects					
Intra-class correlation					
ρ(PSU)	0.071*	0.022*	0.020*	0.062*	0.021*
ρ(household)	0.125*	0.264*	0.219*	0.248*	0.296*

*** p< 0.01, ** p< 0.05, *p< 0.10

In NFHS 4, it can be observed from Model 1 (Null Model) that there is significant variation in child underweight at the community and household level. The Intra-class correlations (ICCs) can be observed at the community and household level for child underweight. Model 2 shows the effect of agro-climatic region on the odds of child underweight. It can be observed that compared to Western Coastal Region, Children of other agro-climatic zones were more likely to be underweight.

But after the inclusion of other covariates in successive models, it can be observed that the agro-climatic zones lose its significance. Here too, the rural place of residence, source of drinking water and other household level variables are important predictors of the risk of child underweight. Education of the mother, delivery t the health facility, proper antenatal check-up and other mother level variables are also important indicators to the vulnerability of child underweight. Household having regular income and per capita NSDP also significantly associate with the risk of child undereweight.

Table 5: Multi level regression on the association between Minimum Acceptable Diet and other contextual factors on child underweight among children less than 5 years of age in India in 2014-2015

	Model 1	Model 2 CI	Model 3 CI	Model 4 CI	Model 5 CI
Minimum Acceptable Diet Yes (Ref.) No		0.912** (0.55,2.11)	0.913** (0.53,2.03)	0.911** (0.54,2.01)	0.909** (0.55,1.86)
West Coast Plain & Ghat Region (Ref.)					
Eastern Himalayan Region		0.855** (1.97,3.65)	0.856	0.899	0.896
Lower Gangetic Plain		0.233* (0.12,3.53)	0.231	0.266	0.245
Middle Gangetic Plain		0.344* (0.16,3.96)	0.396	0.412	0.411
Upper Gangetic Plain		0.745* (0.32,3.63)	0.711	0.755	0.736
Trans Gangetic Plain		1.025* (0.21, 3.69)	1.075	1.084	1.087
Eastern Plateau &Hills Region		1.002* (0.36,3.99)	0.956	0.911	0.963
Central Plateau & Hills Region		0.974* (0.32,3.96)	0.912	0.942	0.962

Western Plateau & Hills Region		0.841* (0.52,3.02)	0.745	0.755	0.675
Southern Plateau & Hills Region		0.774* (0.42,3.41)	0.454	0.421	0.411
East Coast Plains & Hills Region		0.213* (0.33,3.45)	0.312	0.324	0.356
Western Himalayan Region		1.006* (0.61,3.95)	1.023	1.045	1.043
Gujrat Plains & Hills Region		1.052* (0.63,3.01)	1.022* (0.76, 4.53)	1.051* (0.87,4.41)	1.045
Western Dry Region		1.087* (0.51,3.77)	1.073* (0.54,4.01)	1.022* (0.71,3.95)	0.955
Place of residence Urban (Ref.) Rural			1.024* (0.87,4.02)	1.054* (0.42,3.15)	1.024* (0.45,3.85)
Source of drinking water Improved (Ref.) Not improved			1.012* (0.46,3.44)	1.092* (0.44,3.21)	1.012* (0.46,3.44)
Type of toilet-Flush (Ref.) Other			0.023	0.031	0.033
Sex of household head Male (Ref.) Female			1.024* (0.87,4.02)	1.024* (0.87,4.02)	1.024* (0.87,4.02)
Number of children <5 1 (Ref.) 2 ≤			1.012* (0.46,3.44)	1.012* (0.46,3.44)	1.012* (0.46,3.44)

Education of mother None (Ref.) Primary Secondary Higher				0.524* (0.23,5.63) 0.621* (0.66,5.96) 0.023* (0.55,5.99)	0.524* (0.23,5.63) 0.621* (0.66,5.96) 0.023* (0.55,5.99)
Place of Delivery Home (Ref.) Health Facility				0.011* (0.22,6.21)	0.012* (0.23,6.01)
Antenatal care-No (Ref.) Yes				0.091* (0.025,6.32)	0.086* (0.021,6.55)
Suffers from Anemia No (Ref.) Yes				0.986* (0.03,6.02)	0.944* (0.08, 5.99)
Mother and Child Protection Card No (Ref.)Yes				0.301** (0.66,2.25)	0.309** (0.62,3.06)
Age of the child (months) 6-8 (Ref.) 9-23 24-35 ≥ 36					1.213*** (0.52,2.65) 1.249*** (0.41,2.32) 1.301*** (0.59,2.86)
Child diarrhea No (Ref.) Yes					1.149* (0.99,2.70)

Previous Birth Interval <2 years (Ref.) ≥ 2years		0.512	0.513	0.514	0.514
Sex of child Male (Ref.) Female		0.986	0.955	0.941	0.942
Households with BPL card Yes (Ref.) No		0.511	0.523	0.521	0.522
Household with regular income Yes (Ref.) No		1.255** (0.09,3.33)	1.259** (0.03,3.06)	1.259** (1.06,3.02)	1.256** (1.02,3.01)
Per capita Net State Domestic Product		0.011* (0.05,4.08)	0.016* (0.084.09)	0.016* (0.06,4.05)	0.016* (0.09,4.04)
Random Effects					
Intra-class correlation					
ρ(PSU)	0.064*	0.022*	0.020*	0.021*	0.024*
ρ(household)	0.099*	0.264*	0.241*	0.296*	0.287*

*** p< 0.01, ** p< 0.05, *p< 0.10

The results for child underweight do not differ much in NFHS 3.

V.Discussion

Most of the existing studies have estimated the association of food consumption pattern and child undernutrition. This study differs from earlier studies as it takes into consideration the association between Minimum acceptable diet and child underuntrition controlling for other covariates at different levels. It was found that the Minimum acceptable Diet is influenced by many factors such as agro-climatic conditions, and other possible socio-demographic factors. Selected socio-demographic indicators are included in the analysis. Different models were applied to maintain the hierarchy to examine the association of factors with three child nutritional indicators namely stunting, wasting and underweight.

Compared with the West Coast Plain, other agro-climatic regions had higher risk of child stunting and underweight. It was found that Upper Gangetic Plain and Western Dry Region showed more prevalence of undernutrition. This is because the state of Uttar Pradesh and Rajasthan are the states where there is more concentration of people living below the poverty line. The economic condition of the household may be a crucial factor for determining Minimum Acceptable Diet. This is because high-income households may have followed all the nutrient requirements for Minimum Acceptable Diet while the poor spending mostly on basic requirements. Madise et al. (1999) in a study suggested that regional economic development is an important source of variation in child undernutrition.

But in majority of the models no significant association was observed for wasting. It was found that after the introduction of household level factors the agro–climatic regions lost their significance.

The multi level analysis found that Minimum Acceptable diet significantly affects the child undernutrition status. It was also observed that people living in rural areas have a higher prevalence of undernutrition as compared to their urban counterpart. This highlights the fact that as children in rural areas belong to lower socio-economic classes, they are more nutritionally deprived. Borkotoky et al (2017) observed that total calorie intake of urban areas has increased.

This study also suggests that that households with regular income has significantly positively associated with reducing child undernutrition parameters. Again per capita Net State Domestic Product (NSDP) is also a significant factor associated with child undernutrition. Hadad et al. (2002) suggested that greater income at the state level leads to higher quality health care and improved water and sanitation systems. There are other studies too where it is observed that there is a positive association of GDP with reduction in child undernutrition. (Subramanyam et al., 2011; Harttgen et al., 2013). However, Vollmer et al. (2014), on the other hand, reported a null or very small association of increase in per capita GDP with reduction in child undernutrition.

It can thus be concluded that diversity in complementary feeding has a significant associatrion with the three indicators of child nutritional status. This study focused mainly on Minimum Acceptable Diet and the importance of agro-climatic zones in influencing the nutritional status of children in India. The study observed that if children were fed according to WHO guidelines then there is less likely for the child to remain undernourished. So following WHO guidelines for Minimum Acceptable Diet, provision of antenatal care and better sanitation and drinking water facility is likely to bring down the percentage of undernourished children in our country.

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Farmer Distress : Are We Missing a Macroeconomic Factor?[1]

Pronab Sen[2]

Abstract :

The distress of Indian Farmers has in recent years received crucial attention from policy makers and economic analysts. This paper proposes to analyse the phenomenon in terms of the macroeconomic linkages operating in the Indian economy.

Key words : Farmers' Distress, Terms of Trade, Macroeconomic Factors.

JEL Classification Codes :R11, O11, M31.

I. Introduction

There is today a general consensus among Indian economists that the current slowdown being experienced by the economy is primarily due to a binding demand constraint which is structural in nature. However, there is far less agreement on why and how things have come to such a pass. In this lecture, I argue that the roots of this problem lie in the collapse of agricultural prices and the resultant distress in most of rural India. Furthermore, I will attempt to provide a macroeconomic explanation of this phenomenon which seems missing from the current discourse.

Rural distress has been in evidence for at least the past several years, and farmers have taken to the streets pretty much all over the country. In an unprecedented development, practically all farmer organisations have joined hands to demand relief from the government. The source of the *angst* is clear – crash in agricultural prices. The main demands being made by the farmers are increase in the minimum support price (MSP) across all products and waiver of farm loans, along with the usual increases in agricultural input subsidies.

Despite the fact that this farmers' agitation represents a major political threat to the present government, the government's response has been surprisingly tepid, at best. The only measure of any substance has been an increase in MSPs across a range of crops, and some lip service to improving the effectiveness of delivering the MSP to farmers. By and

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1. XIVth A.K. Dasgupta Memorial Lecture, delivered in the 40 th Annual Conference of Bangiya Arthaniti Parishad at Bethune College,Kolkata on 29th February 2020.

2. Country Director, International Growth Centre, India, & Former Principal Economic Adviser, Planning Commission and Chief Statistician of India.

large, the responsibility for doing so has been passed on to the state governments, which is a convenient way of deflecting the anger. Moreover, the central government has strongly resisted efforts by states to grant farm loan waivers on the grounds that they erode credit culture.

The discourse around this issue too is not particularly edifying. The commonest position appears to be that large MSP increases and loan waivers are undesirable and, in any case, will not solve the problem. “Structural” correctives involving improving farm productivity, reducing wastage and strengthening logistics are popular suggestions. What these commentators seem to overlook is the fact that all these measures will lead to an increase in the availability of farm produce in the market, which will simply exacerbate the deflationary trend in prices; thus leading to an internal contradiction.

Counterpoised to this is a view that the steady fall in agricultural prices is the result of over-production, and the only way out is aggressive exports. This explanation has the virtue of at least being consistent with the observed problem, but it has one fatal flaw –it does not explain the cause of “over-production”. This is particularly important in view of the fact that food inflation remained in double digits for 5 years (2009-14) and collapsed sharply thereafter.

There is no evidence whatsoever that there has been a dramatic increase in agricultural production; if anything the recent trend is marginally lower than the 20 year average. If supply is not the problem, then it must be demand. However, alternate evidence clearly indicates that the dietary intake of the average Indian is still significantly below

desirable norms, which means there is a considerable distance to go before excess supply can become a problem. The pertinent question, therefore, is why is demand not increasing as fast as it was in the past? Any explanation of the crash in agri-prices must therefore also explain this if it is to be at all credible. Sadly, none of them do so.[1]

The purpose of this lecture is to argue that while all the various structural explanations are valid to varying extent in explaining food inflation in India, they are incomplete and, more importantly, are completely unable to explain the deflation. A comprehensive explanation requires a monetary story to be told about, which has been completely missing.

II. Monetary Dualism

The notion of “dualism” – that a country can be viewed as having two distinct sectors – has a long and rich history both in development economics as well as in popular Indian discourse.The concept of dualism was first introduced into development economics by Sir Arthur Lewis (1956). In Indian socio-political discourse, this is referred to as the “Bharat-India” divide.

I propose a specific additional form of dualism: that the Indian economy is composed of two sub-economies – a credit economy and a cash economy. The cash economy can roughly be defined as the entire rural economy plus a significant part of the urban informal sector.

In the credit economy, all transactions within it are mediated through the banking system; whereas in the cash economy, all transactions are in cash. The key assumption is that all transactions between these two sub-economies are carried out only in cash. I further assume that the average price level of goods produced by the cash economy is determined by the amount of liquidity available – i.e. by the stock of currency available in the cash economy – along with other factors affecting demand.

The total stock of currency in the country is used for three purposes:(a) transactions in the cash economy; (b) transactions in "black" assets; and (c) reserves held by the banking sector (this includes bankers deposits with RBI). The total stock of currency is determined uniquely by the RBI as a policy decision. There are two predominant instruments through which the RBI can increase the stock of currency in the country – purchase of either government securities or of foreign exchange. In both cases, RBI action directly increases only the currency reserves of banks, and not the currency held by the public. It is, therefore, important to understand the mechanisms by which currency moves from the reserves of the banks to the cash economy.

There are three main channels. The first is the net value of transactions between the cash and the credit economies. If the money value of purchases by the credit economy from the cash economy exceeds the value of purchases by the latter from the former, the difference between the two values will be reflected in an increase in the stock of currency in the cash economy. The second channel is through the government's fiscal activities. The government not only buys and sells goods and services with the cash economy (which are included in the first channel), but also makes substantial transfer payments in the form of social security, scholarships and the like. The third channel is the net value of cash injections into the black economy less the cash withdrawals through money laundering.

III. Effects of an agricultural shock

In such an economy, if the production in the cash economy is adversely affected by a shock (say, a monsoon failure), the prices of agricultural products will rise since the liquidity available will now exceed the availability of goods. If I further assume that food (a major component of agricultural output) is an essential good so that its demand in the credit economy is inelastic, then consumers in the credit economy will withdraw currency from their banks for purchase of food. This will increase the supply of liquidity in the cash economy, leading to a further increase in prices.

Even when production returns to normal (say during the next harvest), food prices will not decline to the original levels since there would now be more liquidity in the cash economy than earlier. This permanent increase in the price of food relative to all other goods will continue to induce further flows of cash from the credit economy into the cash economy, leading to further increases in food prices. This process will continue until such time as the induced shift in demand towards credit economy goods eventually leads to a zero net transfer of currency between the two sub-economies. Such a shift in demand will occur as the result of the price of credit economy goods falling relative to that of the cash economy goods.

In the credit economy, so long as the currency reserves held by banks exceeds the minimum levels required for precautionary purposes, there will be no reduction of credit available. Thus, there can be a fairly extended period of food inflation with no change whatsoever in any of the monetary aggregates (M_0 or M_3). The inflationary process in such a case is supported by a compositional change in the holdings of currency from passive bank reserves to active circulation in the cash economy.

IV. The Role of MSP

It has been forcefully argued with empirical evidence by a number of commentators that the principal determinant of food inflation in India has been increases in the minimum support price (MSP) of cereals. The argument is that the MSP not only sets the floor price of cereals in the country, but also affects the prices of other agricultural products by inducing a shift of land towards cereal production thereby reducing the availability of other agricultural products. While the floor price argument is undoubtedly true, the land-switching effect is not borne out by facts. The data on area under crops does not indicate any significant shift towards cereals. Moreover, production of non-food-grain crops has been growing much faster than food-grains. What is probably true is that high MSPs can retard the pace of shift out of cereal production.

However, the story is more complex than that, and involves the entire chain of interventions by the government in the food economy. Every year, during harvest time, the government procures nearly 25 per cent of the cereal production at the MSP; the remaining

75 per cent of the grain is sold to traders, who are a part of the cash economy for the most part. Thus, twice a year, within a very short time, there is a massive injection of currency into the cash economy through the procurement process.The government borrows from the banking sector through the Food Corporation of India (FCI) and pays cash for its purchases. The total cash injected through procurement is the procurement price multiplied by the quantity procured.

During the course of the year, the government releases a major part of the grains procured at highly subsidised rates through the public distribution system (PDS) and a smaller part free of cost for certain government schemes. Nevertheless, this usually leaves a significant amount of grains undistributed. Of the 60 million tonnes procured, 45 million tonnes are released through the PDS and 5 million tonnes are provided free to schemes, leaving about 10 million tonnes undistributed. The undistributed amount can either be issued as *ad hoc* allocation to certain states and for exports or can remain in the government's buffer stocks.

Thus, on the supply of cereals, the procurement-cum-PDS operation is equivalent to a mild supply shock with one important *proviso*: there is no loss of income for the farmers. On the monetary side, these operations inject a huge amount of net liquidity into the cash economy. The net liquidity injection is: (procurement price x quantity procured – average PDS issue price x quantity released to PDS). Over the past several years, the procurement price has been increased every year, but the PDS issue price has remained constant. Thus, the monetary injection has steadily increased year by year. his is the factor missed out in all the discussions around the MSP.

The inflationary consequences of these two effects can be very substantial indeed even in a normal year. Since there is no loss of income for the farmers, the additional liquidity is spent on other goods, including non-cereal food items, thereby raising their prices. Of course, a part is also spent on credit economy goods as well thereby reducing a part of the extra liquidity, but given that the consumption basket of farmers is dominated by food (typically food accounts for about 60% of the rural consumption basket, and about the same for the urban poor as well) this effect is probably small. The consequence is that the price impulse spreads rapidly from food-grains to all other food items as well.

In so far as the credit economy is concerned, the general increase in food prices will induce a flow of cash out of bank reserves into the cash economy, thereby perpetuating the inflationary process. The larger the increase in MSP, the stronger will be this inflationary process not only because of the direct effect on food-grain prices, but also because it would induce a higher proportion of food-grains being offered for procurement. There is of course a natural limit to the amount of food-grains procured since the procurement mechanism is limited only to some parts of the country and does not operate in the other parts.

V.What happened in 2014 and after?

We believe that the monetary process described above is the root cause of the persistent food inflation observed since 2005 when sizable increases in MSP were made

by the UPA government. This was exacerbated from 2008 when the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) was rolled out nationally, which represented a new source of liquidity injection into the cash economy. On the average, the NREGS injected about Rs. 320 billion annually. As a result, in 2008-09, although reserve money grew at only 6.4 per cent, currency with the public grew at 17.1 per cent.

Matters came to a head in 2009 when India experienced the worst drought in 30 years. This not only involved a substantial supply shock, but MGNREGS payments shot up by nearly 50 per cent to Rs. 480 billion. To make things worse, there was gross mismanagement of the food economy by the government with food-grain stocks actually increasing due to releases being significantly lower than the procurement during the year. This not only meant a supply shortage larger than just the loss of production, but also additional liquidity injection which further supported the inflationary process.

The inflationary impetus given by the events of 2009 persisted for the next four plus years, and eventually spilled over into the non-agricultural sector, despite the best efforts of the RBI. The RBI not only increased the policy interest rates substantially, but also reduced the rate of growth of reserve money significantly especially in 2011-12 and

2012-13 when it was 3.7 and 6.1 per cent respectively . Currency with the public, however, grew at 11.2 per cent in both years.

A possible additional contributory factor to the persistence, and indeed acceleration, of inflation was the collapse of transactions in the real estate sector. Since this sector represents the single largest repository of black assets, a part of the currency sequestered in property transactions was probably released into the cash economy, thereby partially offsetting the RBI's monetary contraction. Unfortunately, there is no hard data on the volume of real estate transactions in India, but there is sufficient circumstantial evidence to justify this assumption.

In light of this monetary explanation of inflation, the dramatic reduction of the inflation rate in the second half of 2014 can be explained by three developments. First, the increase in MSP in that year was only 3.8 per cent, which was well below the prevailing food-grain inflation of 11 per cent. Thus the real liquidity injection was actually negative. Second, despite the fact that 2014 witnessed a less than normal monsoon , the outlay on MGNREGS dropped sharply by nearly Rs. 120 billion. Finally, and most importantly, the government released more than 6.5 million tonnes of food-grains from its stock through open-market operations, which both augmented the supply of cereals as well as sucked out about Rs. 80 billion in liquidity from the cash economy. This was helped by the fact that global food prices had fallen and therefore there was no incentive for traders to export the additional food-grains.

These three factors together imply that the injection of liquidity into the cash economy in 2014 was more than 30 per cent less than in previous years. It was no wonder that the inflationary process collapsed. There are, however, two features of this reduction in inflation that need to be noted. First, it led to massive rural distress. A sub-par monsoon is always bad news for rural India, and it was made considerably worse by the lack of livelihood support from the NREGS. Moreover, the release of food-grains from the government stocks was singularly badly timed in that it came roughly at the time of the harvest. This meant that the market prices received by the farmers were well below the level that would have been justified by the production short-fall, thus adding to their woes. Second, the RBI had absolutely no role to play in all of this, which points to its limitations in dealing with monetary issues.

Things began to improve a bit in 2015-16 (another sub-par monsoon year) and there were hopes that normal monsoons in 2016 would bring stability back to farm incomes. And then demonetisation happened in November 2016. This one event broke the back of the cash economy. With the sudden withdrawal of liquidity, all sectors of the cash economy suffered. Agricultural prices crashed, and the MSME sector simply did not have the funds for working capital nor the demand for its products. Demand shifted from the cash economy to the credit economy where supply could be made against non-cash payment.

VI. Lessons for the future

There is by now compelling evidence which suggests that the normal monetary transmission mechanisms either do not work or are very weak in most developing countries.[2]

It is amply clear from the recent inflationary experience that this is true of India as well. In countries characterised by monetary dualism, such as India, this is only to be expected. Addressing inflation which has its origins in the cash economy requires a deep understanding of the processes by which currency moves from the coffers of the banking sector into the cash economy, and what the central bank can do about it. While there is considerable research globally on the transmission mechanisms through which monetary policy, especially interest rate changes, work through the credit system, there is virtually none which address this particular issue.

Now that India has adopted inflation targeting as the centre-piece of its monetary policy, this lack of understanding can be very costly. Inflation in India can arise from a variety of causes, and it is important to know what the appropriate monetary instruments are for each case. Use of inappropriate monetary instruments can do more harm than good, and limiting the monetary authority's instruments to a single primary one can be very dangerous indeed. RBI can certainly be proud of finally having achieved a "state-of-the- art" monetary framework. Now if only we had a state-of-the-art economy.

Notes

1. A comprehensive summary of the possible causes of food price inflation can be found in Bhattacharyya, R., Narahari Rao and A. Sengupta, "Why Food Inflation has been high in India", **Ideas for India**, April 16, 2014.
2. See Mishra, P., P.J. Montiel and A. Spilimbergo (2010), "Monetary Transmission in Low Income Countries", **IMF Working Paper**, WP/10/223.

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The Banking Sector of the BRICS Economies: Main Facts and Challenges Way Forward

Dr. Asim K. Karmakar[1] & Dr. Sebak K. Jana[2]

Abstract

BRICS, exhibiting their pattern as "Spaghetti bowl phenomenon" and also their growing significance in the new global order, is now a symbol of the shift in global economic power away from the developed G7 economies towards the emerging market developing world. For several reasons, countries as Brazil, Russia, India, China, and South Africa (BRICS) with their robust macroeconomic fundamentals have come to prominence in building their sound banking systems with its merits and oddities that we are going to discuss here.

Since a sustainable and well-capitalized banking system capable of funding the economic growth is critical for an economy because everyone needs a bank and also since banks play a crucial role in accelerating the process of economic growth and development with the efficient functioning of the banking sector contributing to the national economic growth and higher living standards of the population, this paper, in the above backdrop, focuses on the banking sectors in BRICS economies. Paper analyzes the performance evaluation of banking sectors in the BRICS economies on select parameters such as capital adequacy, non-performing loans, return on assets (ROA) and the return on equity (ROE) for the period 2013 to 2016 particularly in case of Russia and India and in terms of number of branches per unit area, branches per population, automatic teller machines (ATMs) per unit of population, and the depth of banking penetration at the aggregate level using indicators like deposit-to-GDP and loan-to-GDP rates in all the BRICS economies. Paper also details the major challenges that the BRICS banks may face in coming times due to the volatile global financial environment. Data for this paper have been sourced from secondary sources only. A study of the banking systems, deposit insurance framework, performance evaluation of banks on select parameters, and challenges way forward in the banking sector in the Banking sectors of the BRICS economies is, therefore, both exciting and challenging.

Keywords: BRICS, Banking System, Deposit Insurance, Performance Evaluation

,JEL Code: G21,G22 ,G23,G24 G28, G32.

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[A]ll over the world the banking sector is going through a serious transformation in the aftermath of the latest financial crisis: regulation has been tightened, capital burden has increased, making banks in many countries unattractive for investments. Despite soft monetary policies in the leading economies, the banking system is wary of boosting lending.

— Elvira Nabiullina, the Governor of the Bank of Russia *(2016)*

I. Introduction

BRICS, exhibiting their pattern as "Spaghetti bowl phenomenon" and also their growing significance in the new global order, is now a symbol of the shift in global economic power away from the developed G7 economies towards the emerging market developing world. For several reasons, countries as Brazil, Russia, India, China, and South Africa (BRICS) with their robust macroeconomic fundamentals have come to prominence in building their sound banking systems with its merits and oddities that we are going to discuss here.

Since a sustainable and well-capitalized banking system capable of funding the economic growth is critical for an economy because everyone needs a bank and also since banks play a crucial role in accelerating the process of economic growth and development with the efficient functioning of the banking sector contributing to the national economic growth and higher living standards of the population, this paper, in the above backdrop, focuses on the banking sectors in BRICS economies. Paper analyzes the performance evaluation of banking sectors in the BRICS economies on select parameters such as capital adequacy, non-performing loans, return on assets (ROA) and the return on equity (ROE) for the period 2013 to 2016 particularly in case of Russia and India and also in terms of number of branches per unit area, branches per population, automatic teller machines (ATMs) per unit of population, and the depth of banking penetration at the aggregate level using indicators like deposit-to-GDP and loan-to-GDP rates in all the BRICS economies. Paper also details the major challenges that the BRICS banks may face in coming times due to the volatile global financial environment. Data for this paper have been sourced from secondary sources only. A study of the banking systems, deposit insurance framework, performance evaluation of banks on select parameters, and challenges way forward in the banking sectors of the BRICS economies is, therefore, both exciting and challenging.

Objective Of The Paper

The objective of the present paper is to put the BRICS banking sector in the spotlight – by providing an overview of the countries' banking sectors, their reforms, their growth and the challenges they have experienced and going to be faced in the upcoming year.

II.BRAZIL

The Brazilian banking system consists of 174 banks including 153 commercial banks, 12 investment banks, 4 development banks and 4 exchange banks. In total the banks operate over 30,000 branches and about 170,000 ATMs across the country. The four largest Brazilian banks control more than 70% of banking sector. Banco Santander is the largest foreign bank operating in Brazil. The number of debit cards and credit cards in circulation equals approximately 108 million and 82 million, respectively. Banco Central do Brasil, founded on December 31,1964, is the central bank of the country.

The present Brazilian banking structure was designed by Law No. 4595, of December 31, 1994 (the "Banking Reform Law"), which entirely formed the domestic financial system according to the specialization of the financial institutions, and consists of the National Monetary Council ("CMN"), the Central Bank of Brazil ("Bacen"), Banco do Brasil S.A. ("BB"), the National Economic and Social Development Bank ("BNDES"), the Federal Savings and Loan Association ("CEF") and all other public and private financial institutions authorized by Bacen.

The Brazilian banking system offers a substantial range of services for both private individuals and companies. Banking rules are strictly enforced, and all banking business is closely monitored by the banks themselves and by the Central Bank of Brazil (*Banco Central do Brasil*).

The CMN is the senior agency of the Brazilian Financial System and is responsible for monetary policies directed toward economic and social development. Bacen is an autonomous governmental entity responsible for the execution of monetary policies, exchange controls, regulation of banks and financial institutions and control of foreign investments. BB is a mixed-capital corporation and, as a commercial bank controlled by the federal government, is the principal bank agent for the Union. It is involved in public and private financing and has a major role in executing federal government-subsidized lending programs. BNDES is a public financial institution which acts as the main instrument for implementing the federal government's investment policy, granting loans, many of which are at subsidized interest rates, and supervising government financing plans. Presently, it also carries out the Brazilian privatization program. CEF is the principal agent of the National Housing System, receiving deposits and granting mortgage loans. It also administers the Employees Guarantee Fund (FGTS), the Social Integration Program (PIS/PASEP) and the national lotteries (Urdapilleta & Stephanou 2009).

Challenges

Challenges way forward for banking sectors in Brazil include the efficiency of the Brazilian banking system, the relatively low level of intermediation – due to the presence of a non-competitive market structure; as well as the challenges related to adequacy of legal protection and non-performing loans. In order to overcome some of these challenges, the country should continue to pursue and promote innovative financial inclusion policies, in order to ensure that appropriate and affordable financial services are made available to all segments of the society, including the vulnerable groups.

III. RUSSIA

The banking system in the Russian federation consists of the Central Bank of Russia (the 'Bank of Russia'), national level and regional banks; and non-credit organizations. While national level banks operate across the Russian Federation, the business model of regional banks includes operations within a single region with minimum control. Bank of Russia is the key regulatory authority for banking and is also in charge of monetary policy in the Russian Federation. It frames rules for conducting banking operations, effecting settlements and supervises the activities of credit institutions. In 2013, the Bank of Russia became the ultimate financial regulator for all financial institutions, including the insurance industry. As a mega-regulator, the Bank of Russia introduced far-reaching reforms in the regulation and supervision of all segments of the financial sector in order to increase savings, improve savings safety, and protect them from risks, all with a view to investing in the economy. In 2015, the banking system maintained its stability and ability to lend to the economy, aided by regulatory concessions over a large part of the year. The Bank of Russia continued its policy aimed at recovering the banking sector.

Banking represents the most significant sector of the Russian financial system. Bank assets amounted to 103 per cent of GDP at the end of 2015. The Russian banking system is highly concentrated with a few large national banks. As of 2015, the top six accounted for 69 per cent of total assets and 83 per cent of total loans to customers (Angel et al., 2016).

In 2016 the Bank of Russia began reducing its key rate and simultaneously continued the liquidation of banks conducting risky lending policies.

Since 2014, the banking industry in Russia showed a weak performance, with profit indicators narrowing and non-performing loans increasing. AM Best Report (2016) finds that there has been a reluctance of banks to make new loans which will affect economic growth going forward. Banks have been shut out of international markets due to the ongoing sanctions. Non-performing loans are growing steeply.

Deposit Insurance in the Russian Federation

Russia enacted the Deposit Insurance Law in December 2003 and established the National Deposit Insurance Agency (DIA) in 2004. The Agency is set up as a state-owned corporation, managed jointly by the Central Bank and the Government of Russia. DIA membership is a mandatory requirement for any bank operating with private investors' money. The law addresses only individuals' deposits (Dutta 2019*)*.

Performance Evaluation of The Russian Banking Sector
Bank Capital Adequacy Ratio

Capital Adequacy Ratio[1] (CAR),also known as the Capital to Risk-Weighted Assets Ratio (CRAR) is considered the minimum necessary to achieve the objective of securing over time soundly based and consistent capital ratios for all international banks. According to the IMF Report (2016) on the Russia's financial sector, the corporate debt servicing capacity has deteriorated, and NPLs (Non-performing loans) have risen. Even Corporate NPLs increased, particularly with deterioration in the construction and real estate sector.

Table1A: Bank Capital to Risk –weighted Ratio

Country	2013	2014	2015	2016
Russia	13.4	13.2	12.9	12.4

Source: CBR-Review of the Banking Sector of the Russian Federation Analytical Data

Looking at the CRAR data presented in Table 1A, it is evident that during the period from 2013-2016, the Russian banking sector maintained CRAR within the range of 12.4 per cent to 13.9. But during 2016, there is a downward trend. The reason for the same is a high level of NPLs.

Bank Non-Performing Loans to Gross Loans

Bank Non-Performing Loan (NPLs) [2] erode the capital of the bank, negatively impacts their Capital to Risk-Weighted Assets Ratio (CRAR), as well as capacity to lend and absorb risk. Table 1B presents the position of NPLs to total gross loss for the period 2013-16 for the Russian banking sector.

Table 1B. Bank Non-Performing Loans to Total Gross Loans (%)

Country	2013	2014	2015	2016
Russia	6.0	6.7	8.3	9.4

Source: Available at http://data.worldbank.org/indicator/FB.AST.NPER.ZS? locations =RU&view=chart

Data on NPLs (Table 1B) clearly indicates an upward trend at an aggregate level, suggesting worsening quality of bank loan portfolios in Russia.

Bank Return on Assets (ROAs)

The operation of the banking sector will be marked as efficient if the ROAs[1] is higher. Table 2 depicts the ROA of the Russian banking sector at an aggregate level for the period 2013-16.

Table 2. Bank Return on Assets (ROAs) ***(%)***

Country	2013	2014	2015	2016
Russia	2.1	1.8	0.5	0.4

Source: **CBR-Review of the Banking Sector of the Russian Federation Analytical Data for various years.**

Data presented in Table 2 shows a substantial decline in the ROAs of the Russian banks right from 2013 to 2016 reflecting the sharp decline in operating profit and net profits. The steep decline in the ROAs suggests ineffectiveness of expense management, improper service pricing policies, and inappropriate portfolio management policies especially the bank product mix and yield on assets.

Bank Return on Equity (ROE)

According to De Nederlandsche Bank study, the ROE of banks, a common measure of profitability, is a hotly debated topic among banks and regulators (Daniels and Kamalodin, 2016). ROE is typically defined as net income divided by the book value of equity. Table 3 provides ROE for the Russian banks at an aggregate level for the years 2013-16 and it also shows that there has been a sharp downward trend in the ROE [4] of banks in Russia during the period 2013- 18.

Table 3. Bank Return on Equity (%)

Country	2013	2014	2015	2016
Russia	17	14.5	4.8	3.4

Source: CBR-Review of the Banking Sector of the Russian Federation Analytical Data for various years.

The sharp decline is due to deterioration of profitability as NPLs spiked.

Challenges Facing the Russian Banking Sector

Key challenges for the Russian banking sector include non performing loans, capital rising incapacity, rapid financial technology revolution that transforms relations between customers and banking institutions, Managing risk, including cyber risks, corporate clients going away from banks for rigidity in the banking system, slow pace of weak corporate governance mechanism, and slow adoption of modern operational concepts, and business.

IV. INDIA

The Indian banking system consists of the Reserve Bank of India and scheduled commercial Banks (SCBs)[5] SCBs comprise public sector banks (State Bank group and other nationalized banks), private sector banks, and regional rural banks and foreign banks. The Reserve Bank of India, the nation's central bank, was established with the objective of ensuring monetary stability and operating the currency and credit system of the country to its advantage. Its functions comprise monetary management, foreign exchange and reserves management, financial regulation and supervision, apart from currency management and acting as banker to the banks and to the government.

In addition, the Reserve Bank plays an active developmental role, particularly for the agriculture and rural sectors. Over the years, these functions have evolved in tandem with national and global developments.

According to the Reserve Bank bulletin of June 2016, the number of reporting banks conducting banking business in India in March 2016 was 147. Currently, foreign direct investment up to 20 per cent is allowed in public sector banks and 74 per cent in private sector banks (49 per cent under automatic route and above 49 per cent and up to 74 per cent under government route). Foreign bank assets in India amounted to 3 per cent of the total bank assets during 2013. The years 2015-16 witnessed the entry of new players in the banking sector with the establishment of small finance and payments banks. These banks are expected to cater to niche domains and under-served segments of the population, and thereby further financial inclusion while fostering competition in the banking sector.

The state of Indian banking prior to 1991 was different from today. Banks made no mention of profits or losses; they did not fix deposit or lending rates. There were no capital adequacy norms, nor rules for bad loans. As the then Finance Minister Manmohan Singh brought in economic reforms and the capital adequacy and prudential norms were phased in over a period with clarity on destination and timelines that made the process sustainable (Karmakar and Jana 2019). To integrate the Indian banking system into the global financial system, the Reserve Bank of India issued guidelines on Basel III implementation which became effective from 1 January 2013 in a phased manner.

In summary, the Indian banking landscape has changed rapidly during the past two decades. The main goal of regulation of the banking system in India is to maintain financial stability, protect the interest of bank customer, and expand the reach of banking to the masses through financial inclusion. However, India is striving hard to re-orient and re-energize its banking sector.

Deposit Insurance Systems in India

Explicit deposit insurance systems are an important constituent of a financial system safety net. Deposit insurance plays a key role in the maintenance of financial stability by sustaining public confidence in the banking system through protection of depositors, especially small and less sophisticated depositors, against loss of deposit. The need for deposit insurance arose from frequent instances of bank failures that adversely impacted depositor confidence. Over time, financial stability and protection of small depositors have emerged as the primary reasons for the spread of deposit insurance across the world (IADI, 2011). However, there is no uniform criterion to create deposit insurance fund for providing protection to depositors.

India introduced the Deposit Insurance in 1962. The Deposit Insurance Corporation (DIC) commenced functioning on 1 January 1962 under the aegis of the Reserve Bank of India (RBI). 1971 witnessed the establishment of another institution, the Credit Guarantee Corporation of India Ltd. (CGCI). In 1978, the DIC and the CGCI were merged to form the Deposit Insurance and Credit Guarantee Corporation (DICGC). It stipulates that all banks accepting individual deposits must be members of the deposit insurance system. Maximum compensation is limited to Rs. 1 lakh (equivalent to approximately 1,550 US Dollars) per depositor per bank since May 1993. Deposit insurance coverage in India is too low compared to Russia and other BRICS countries. Reason for low coverage could be the inadequacy of deposit insurance fund. A recent study on the adequacy of deposit insurance fund in India suggests that rather than following a uniform premium system, deposit insurance premium be determined on the riskiness of each bank.

A recent study on the adequacy of deposit insurance fund in India suggests that rather than following a uniform premium system, deposit insurance premium be determined on the riskiness of each bank (Doss 2017).

Performance Evaluation of the Indian Banking Sector

Like other businesses, banks too are organized as profit-making entities. In today's world, bankers and their competitors are under great pressure to perform well all the time. Performance refers to how adequately a financial firm meets the needs of its stockholders (Ross and Hudgins, 2010). A detailed review of the four most widely used parameters of bank performance, namely, capital adequacy ratio, non-performing loans, ROAs, and ROE are discussed next.

Bank Capital Adequacy Ratio (CAR or CRAR)

Looking at the CRAR data presented in Table 4, it is evident that during the period from 2013 to 2016, the Indian banking sector maintained CRAR within the range of 12.4 per cent to 13.9. But during 2016, there is a downward trend. The reason for the same is a high level of NPLs (Non- performing loans).

The Indian government has supported capital infusion into public sector banks in the last couple of years. However, bank profitability has failed to keep pace with government capital infusion.

The BCBS[6] issued a comprehensive reform package, 'Basel III: A Global Regulatory Framework' for more resilient banks and banking system in December 2010. The objective of the reform package is to improve the banking sector's ability to absorb shocks arising from financial and economic stress, whatever the source. Consequently, the Reserve Bank of India issued guidelines on Basel III implementation, after due consideration of the comments/suggestions received from various stakeholders. Table 4 shows the trends in CRAR from 2013 to 2016 for India.

Table 4. Bank Capital to Risk-Weighted Assets Ratio (%)

Country	2013	2014	2015	2016
India	13.9	13	13	13.3

Source: RBI Report on Trend and Progress of Banking in India for various years.

Bank Non-Performing Loans to Gross Loans

Table 5 presents the position of NPLs to total gross loss for the period 2013-16 for the Indian banking sector.

Table 5. Bank Non-Performing Loans to Total Gross Loans (%)

Country	*2013*	*2014*	*2015*	*2016*
India	4.0	4.3	5.9	9.2

Source: Available at http://data.worldbank.org/indicator/FB.AST.NPER.ZS

Data on NPLs (Table 5) clearly indicates an upward trend at an aggregate level, suggesting worsening quality of bank loan portfolios of India. A high and rising proportion of delinquent loans and a consequent increase in provisioning for NPLs weigh on credit growth reflecting the low- risk appetite and stressed financial position of the banking sector. This is attributed to the specific directions to banking institutions to conduct asset quality review to clean the balance sheet of banks.

According to the RBI report (2015-16), provisioning for NPAs more than doubled on account of improved recognition of NPAs. The RBI, and the government India have initiated the process of revamping and strengthening the regulatory framework for empowering banks to vigorously resolve and/ or recover dues from defaulting borrowers. For example, in India besides the existing resolution and recovery mechanisms of corporate debt restructuring, strategic debt restructuring, one-time-settlement, debt recovery tribunals, the Securitization and Reconstruction of Financial Assets and Enforcement of Securities Interest Act 2002 (SARFAESI Act), sale of bad loans to asset reconstruction companies, the Government of India enacted the Insolvency and Bankruptcy Code 2016 (IBC) which seeks to consolidate the existing framework by creating a single law for insolvency and bankruptcy.

Bank Return on Assets

Table 6 depicts the ROA, one of the most commonly used accounting measures/ratios for the efficiency of banks, of the Indian banking sector at an aggregate level for the period 2013-16.

Table 6. Bank Return on Assets *(%)*

Country	2013	2014	2015	2016
India	1.04	0.8	0.8	0.3

Source: RBI Report on Trend and Progress of Banking in India for various years.

Data presented in Table 6 shows a substantial decline in the ROAs of the Indian banks right from 2013 to 2016 reflecting the sharp decline in operating profit and net profits. The steep decline in the ROAs suggests ineffectiveness of expense management, improper service pricing policies, and inappropriate portfolio management policies especially the bank product mix and yield on assets. For improving the ROAs, banks will have to review and reinvent their product mix, processes, pricing, and portfolio management policies to keep pace with the changing banking landscape. In addition, adoption of innovative and cutting-edge technology can be very helpful in fundamentally reducing the cost-structure and improving the ROAs of the banking sector.

Bank Return on Equity

The fact that besides internal generation of capital, banks now depend heavily on the capital market to raise funds they need.

Table 7 provides ROE for the Indian banks at an aggregate level for the years 2013-16.

Table 7. Bank Return on Equity (%)

Country	*2013*	*2014*	*2015*	*2016*
India	13.8	10.7	10.4	3.6

Source: RBl Report on Trend and Progress of Banking in India for various years.

Data provided in Table 7 dearly indicates a downward trend in the ROE of banks in India during the period 2013-16. The sharp decline is due to deterioration of profitability as NPLs spiked and the Reserve Bank of India mandated asset quality forced banks to make higher disclosures and resultant provisioning of NPLs. Bankers in India will have to go back to the basics of giving return to the shareholders, which suggests it is not the top line *(*revenue) that is important. It is really the ROE that matters to the shareholders.

Challenges Facing the Indian Banking Sector

Key challenges for the Indian banking sector include is the management of non-performing assets (NPAs) to build stronger balance sheets for the future, meeting regulatory capital requirement according to Basel III and capital raising is another big challenge, especially for public sector banks in India, Rapid financial technology revolution that transforms relations between customers and banking institutions, effective risk management. Additionally, the banking sectors' ability to raise capital from external sources is severely impaired by the poor financial performance as reflected by ROAs and the ROE and resultant low valuation. Low cushion over regulatory minimum capital will further make the banking sector vulnerable to external shocks. This may also result in the merger of undercapitalized banks with financially sound banks.

Government is amending rules, bringing in new laws, and has created asset reconstruction entities to accelerate speedier resolution of distressed loans. Banks on their part have established separate recovery verticals focusing exclusively on the non-performing portfolio.

V. China

China's banking sector has gone through several stages of development and reforms. Between 1949 and 1979, China's entire financial system consisted of one bank, the People's Bank of China (PBOC), which was a single bank that managed all deposit-taking, lending and payment system functions of the state planning system. In 1979, as a part of the reform toward a more modern banking system, PBOC's international trade financing and foreign exchange businesses were spun off to the Bank of China (BOC), and the agriculture and fixed investment & construction functions were allocated to the Agricultural Bank of China (ABC) and the China Construction Bank (CCB), respectively. In 1984, the PBOC became the central bank after its savings and loan functions were transferred to the ICBC (Industrial and Commercial Bank of China**).** By the early 1990s, the top-tier structure of the Chinese banking system was formed, with the Big Four banks, nine joint-stock commercial banks and numerous cooperatives and finance companies. All of the non-bank financial institutions can be classified into one or more of the following: trust and investment companies, rural credit cooperatives and urban credit cooperatives.

Until the early 1990s, China's banking system had been under strict government control, including setting interest rates, lending targets and lending decisions. In 1993 and 1994 , with the establishment of the three policy banks(the State Development Bank of China, the Export-Import Bank of China and the Agricultural development Bank of China), the largest four specialized banks became the Big Four state-owned commercial banks.

The dominance of the Four Big banks also implies that the degree of competition within the banking sector has been low. The Four Big banks control more than half of the total banking assets. Besides, with the entrance of many non-state banks and intermediaries, China's concentration ratio has been falling sharply since 1997. There are more than 30,000 banks and and non-bank financial institutions operating as legal entities in China, although the Big Four banks still control more than half of the total banking assets (Allen, Huang,Qian & Zhao,2012).

Prior to the financial crisis that started in the summer of 2007, the 'Washington consensus' view was that banks and other financial institutions should be privately owned. There was considerable evidence that publicly owned banks were inefficient and subject to political pressures. Since the start of the crisis, China's state- owned but publicly listed banks have provided evidence that public ownership can have significant advantages, however, At the height of the crisis all three of the world's largest banks, measured by market capitalization, were Chinese. The banks did not suffer from financial stability problems and this helped Chinese economy to come through the crisis as well *(*Allen, Huang, & Zhao, 2012).

It is now clearly the largest banking system in the world, with $35 trillion in total assets (about 300% of China's GDP).

Challenges

The most significant problem for China's banking sector, and for the entire financial system in recent years, has been the amount of NPLs within the state-owned banks.

There is a strong reason to believe that the country faces a highly leveraged banking system full of loans of questionable quality and mounting defaults. While much of the media remains focused on Trump and trade, the greatest threat to the Chinese economy may be reckoning with a massive financial bubble from within.

Reducing the amount of NPLs to normal levels is the most daunting task for China's financial system .However, since the late1990s, the central government had taken actions to improve the banking industry's asset quality, risk management and capital base, to ensure that state-owned banks will eventually be transformed into modern (limited liability) corporations listed in global capital markets and complying with international standards.

Thus, it is important to reduce the level of NPLs to improve the bank's capital adequacy. But what happens, at the end of 2001, despite several efforts, the total amount of NPLs within the Four Big banks was estimated to be at the level of around RMB 1.7 trillion.

Recognizing the importance of and its responsibility in reducing NPLs in the Big Four banks, The Chinese government has injected foreign currency reserves (mostly in the form of US dollars, T-bills, Euros and Yen) into these banks to improve their balance sheets in preparation for going public. This process began at the end of 2003. As a result, Chinese foreign exchange reserves reached US 1.68 trillion as of March 2008, the largest in the world, while the total amount of NPLs was around US $160 billion at the end of 2007. So NPLs would remain a potential problem in the upcoming years.

Another key challenge for Chinese banks is earnings growth and diversification.

Foreign competition is another imminent challenge faced by Chinese banks. Historically, the banking industry in China was protected from foreign competition. But running now at low efficiency compared with their foreign competitors, Chinese banks need to improve their business significantly in order to compete with the foreign banks on their home turf as well in the world markets.

A further challenge is the lack of transparency in the banking industry. China urgently needs full and transparent disclosure of the size of its bad-debt problem, and a clear plan to address it. The longer it delays, the more expensive and painful the fix will be. Chinese listed banks are required to adopt international financing reporting standards.

VI. South Africa

South Africa's banking sector is highly concentrated with the four largest banking groups (Standard Bank of South Africa Ltd, ABSA bank Ltd, First Rand Bank Ltd., and Nedbank Ltd) Despite the seemingly large number of banks, only these four dominate the market, known as "the big four" accounting for over 84 percent of total banking assets (26, 22, 19 and 18 percent, respectively).

A unique feature of the South African banking sector is its high concentration, which implies low competition. The link between competition and stability has long been established as positive.

The financial crisis did not have a direct impact on the South African banking system, but the economic downturn that resulted from the crisis reduced the profitability of banks.

South Africa's banks are regulated in accordance with the principles set by the Basel Committee on Banking Supervision (BCBS).It has adopted macro-prudential regulatory framework from year 2013 and it makes use of inflation targeting framework.. South Africa's major strength lies in its record of responsible macroeconomic management, together with strong institutions, a deep and liquid local bond market, and a sophisticated and well-regulated banking sector. The South African financial system was protected by a broader set of prudent economic, fiscal, and financial sector policies that insulated the economy from the worst of the global shocks.

These include: a robust countercyclical monetary policy framework capable of absorbing relatively large external shocks with minimum impact on the domestic economy; low private and public foreign indebtedness; countercyclical fiscal policy; a proactive approach to dealing with bank credit risks, including changes in capital adequacy requirements and conservative leverage ratios to curb excessive credit growth; and legislation to protect households from reckless lending practices (National Credit Act).

The heart of the banking system is the South African Reserve Bank, which is the primary monetary authority and custodian of the country's gold and foreign exchange reserves. The Reserve Bank is managed by a board of fourteen directors, seven representing major commercial and financial institutions, industry, and agriculture, and seven appointed by the government. Of the latter, one serves as governor, and three serve as deputy governors of the Reserve Bank.

The Reserve Bank's primary functions are to protect the value of the rand and to control inflation. The Reserve Bank regulates the money supply by influencing its cost--i.e., interest charged on loans to other institutions. It is technically independent of government control, but in practice it works closely with the Treasury and helps to formulate and to implement macroeconomic policy. The Reserve Bank issues banknotes and is responsible for the sale and purchase of foreign exchange for the government, as well as for the administration of the treasury-bill tender system. Its major customers are government agencies, private banks, and discount houses, although it also performs clearinghouse functions for private banks and assists banks that experience liquidity problems. Finally, the Reserve Bank is the authorized buyer of gold bullion, thereby acting as agent for the gold-mining industry in effecting sales on their behalf in the private market.

The Reserve Bank uses monetary policy to control inflation, primarily by adjusting the liquid-asset requirements of private banking institutions and by restricting bank credit in order to control consumer demand. Until 1975 the bank enforced fixed interest rates on long-term government securities, but thereafter it allowed transactions at market-related prices. Direct control over deposit interest rates quoted by banking institutions was abolished in 1980; nevertheless, the Reserve Bank still exercises considerable indirect control through its own bank rate.

The private banking sector was controlled by commercial banks until the 1950s when banking services began to diversify. Until then, commercial banks had avoided services such as personal loans, property leasing, and credit-card facilities. New institutions--including discount houses, merchant banks, and general banks--emerged to meet this demand, and in reaction to these changes in the banking sector, commercial banks increasingly entered into medium-term credit arrangements with commerce and industry and acquired interests in hire-purchase firms and leasing activities. In addition, they expanded their operations into insurance and even invested in manufacturing and commercial enterprises.

In February 1991, four of the country's leading financial institutions--Allied Bank, United Bank, Volkskas, and Sage Banks--merged to create the largest banking group in the country, the Amalgamated Banks of South Africa (ABSA), with assets of R56 billion. ABSA, which merged with a fifth bank in 1992, is jointly controlled by the Rembrandt tobacco group and the South African National Life Assurance Company (Sanlam), the country's second-largest insurance group. The banking industry is undergoing further reorganization in the mid-1990s, in part to establish banking services in poor communities that were neglected under apartheid.

Challenges

Banks are facing increasing pressure as technology-based banks are entering the sector. Commercial banks are facing increasing competition from financial companies that are taking over traditional activities like payments, lending, deposits, asset management, and even advisory services.

ABSA, FNB, Nedbank and Standard Bank are closing down or downsizing branches to control rising operating costs and in response to customers' increasing use of online and mobile banking services. New digital banks including Discovery Bank, Bank Zero and Tyme Bank and mobile money apps and services provided by telecoms and retail companies will be forcing commercial banks to intensify efforts to continue modernizing technology platforms.

Three important challenges faced by the South African bank are the implementation of the New Capital Accord, or Basel II; the provision of the broader access to banking services; and the full implementation of anti-money laundering measures, including weak operating conditions that will affect the overall profitability and the loan quality.

So far so is the analysis of the BRICS banking system, performances and challenges way forward. Now we are looking forward on other important issues.

Accessibility of financial services in the BRICS Economies

The accessibility of the banking sector for the common man can be measured by various indicators. Some of these indicators are number of branches per unit area, branches per population, automatic teller machines (ATMs) per unit of population, and the depth of banking penetration at the aggregate level using indicators like deposit-to-GDP and loan-to-GDP rates. Based on available and comparable data for 2018, BRICS economies significantly improved the accessibility of banking services to the common man.

Table 8: Various indicators of BRICS' banking sectors

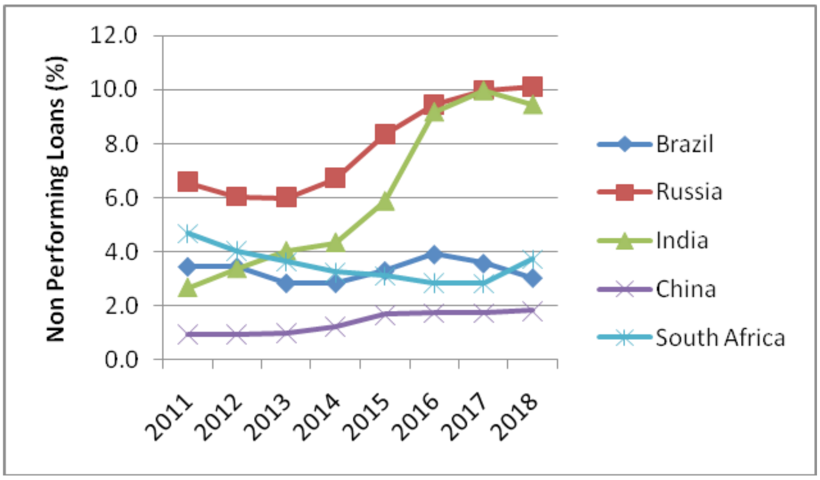
	Brazil	Russia	India	China	South Africa
Real interest rate (%)	35.00	-1.30	5.13	1.38	5.93
Lending interest rate (%)	39.08	8.87	9.45	4.35	10.08
Deposit interest rate (%)	6.87	5.36		1.50	7.00
Bank liquid reserves to bank assets ratio (%)	30.80	8.87			3.33
Domestic credit to private sector by banks (% of GDP)	61.78	51.23	50.05	161.13	65.74
Depositors with commercial banks (per 1,000 adults)	665.33			29.09	
Commercial bank branches (per 100,000 adults)	18.99	26.23	14.56	8.85	10.12
Bank capital to assets ratio (%)	10.06	9.97	7.53	9.07	8.42
Automated teller machines (ATMs) (per 100,000 adults)	104.79	160.92	21.74	96.82	66.66
Bank nonperforming loans to total gross loans (%)	3.05	10.12	9.46	1.83	3.73

Source: World Bank (2019)

Branches per 100,000 adult populations have increased in both Russia and Brazil in comparison to other BRICS nations; the number of ATMs per 100,000 adult populations has increased in Russia and Brazil. Bank capital to assets ratio has increased significantly in all the BRICS economies, and domestic credit to private sector by banks as % of GDP has increased in all the BRICS economies, the highest increase as witnessed by China followed by South Africa (Table 8).

Figure 1 shows Bank nonperforming loans to total gross loans (%) in BRICS during 2011-2018. It appears that NPLs to total gross loans are one of the major problems of the BRICS banking system. Fig.1 indicates that Russia is ahead in this indicator followed by India, South Africa, Brazil, and China.

Figure 1: Bank nonperforming loans to total gross loans (%) in BRICS during 2011-2018



Source: World Bank (2019)

The above facts and figures indicate that though the banking systems differ one BRICS country to another, as do their national state of affair, there are some commonalities in the challenges before the banking sectors in the BRICS economies. For example, the main goal of regulation of the banking system in BRICS countries is to maintain financial stability, protect the interest of bank customer, and expand the reach of banking to the masses through financial inclusion. However, BRICS as a whole are striving hard to re-orient and re-energize their respective banking sectors.

VII. Challenges Way Forward For the Banking Sector in the BRICS Economies

What follows from the above discussion is the fact that the biggest challenge facing banking sector in BRICS economies are the following:

(1) the management of non-performing assets to build stronger balance sheets for the future. Governments in these countries are amending rules, bringing in new laws, and have created asset reconstruction entities to accelerate speedier resolution of distressed loans. Banks on their part have established separate recovery verticals focusing exclusively on the non-performing portfolio.

(2) Meeting regulatory capital requirement according to Basel III and capital raising is another big challenge, especially for public sector banks in India and government-owned banks in Russia. On the one hand, governments capital commitment to banks will not be sufficient. Additionally, the banking sectors ability' to raise capital from external sources is severely impaired by the poor financial performance as

reflected by ROAs and the ROE and resultant low valuation. Low cushion over regulatory minimum capital will further make the banking sector vulnerable to external shocks.

(3) Rapid financial technology revolution that transforms relations between customers and banking institutions is another challenge for the banking sectors in the BRICS economies. New and disruptive technologies add elevated threats of cyber frauds and cyber attacks to traditional banking risks.

While there is no denying the fact, that adoption of technology and digitization, improves customer service and bring cost efficiencies, experts believe that excessive digitization and having digital devices, everything may not be good from a security point of view in banking.

(4) Another development is the shifting preference of large corporate clients from credit market (bank-based system) to the capital market-based system. In the aftermath of financial crisis and due to increasing rate of defaults, banks now impose stringent covenants in the loan agreements. This has dissuaded corporate clients to raise funds directly from the market rather than through banking channels. As a consequence of the same, business growth of banking sector may be negatively impacted. Accordingly, banks in Russia and India have to review their business models, focus on financial inclusion more aggressively, and find ways to rebalance their loan portfolio in favor of retail assets.

As global markets become more competitive and volatile, banking sector's success will depend on the ability to operate and scale up in an uncertain environment. Managing risk, including cyber risks, will become increasingly important. Thus, effective risk management has become an important area of focus of banking sector.

Besides, adverse economic environment, resultant weakening asset quality, capital adequacy, technology adoption, and risk management concerns have been raised on the slow pace of weak corporate governance mechanism, and slow adoption of modern operational concepts, and business procedures practiced by the BRICS' banking industries.. Thus, a parallel task is to improve the governance and management framework. Equally important is to fill out the ranks of middle management that have been thinned out by retirements, and to recruit talent with expertise in project evaluation, credit risk assessment, enterprise risk management, and information technology (IT), including cyber security.

VIII. CONCLUSION

The banking system is a pre-requisite for a well-functioning economy. Without banking infrastructure in place, economic transactions among individuals and businesses will virtually stop. Even capital markets, foreign exchange markets, insurance markets, etc., would not be functional without a banking system. Banks are the backbone of an economy. By mobilizing savings and granting loans, and facilitating payment and settlement among economic agents, banks keep the economy moving. Banks play an indispensable task of intermediating between savers and borrowers in the financial system. As financial intermediaries, banks accept deposits from the public, transform deposits into a variety of loans, and move money in an economy through the provision of payment services.

BIS defines a bank as an entity whose business is to receive deposits, or close substitutes for deposits, from the public and to grant credits for its own account. Banks include entities such as commercial banks, universal banks, savings bank, post banks, agriculture credit banks, cooperative banks, and credit unions etc. In the system of National Accounts, a bank, other than the Central Bank, is referred to as a deposit-taking corporation. Moreover, the ability of banks to gather and analyze the financial condition of prospective borrowers and continually evaluate the status of outstanding loans is referred to as delegated monitoring theory (Diamond, 1984). By making a large volume of loans, banks act as delegated monitors, can diversify and reduce their risk exposure, resulting in increased safety for their depositors. Apparently, the banking business model of, 'buy- low' (mobilize deposits at a low rate) and 'sell-high' (lend at the relatively higher rate) appears to be simple and straight. In reality, banking is a complex and challenging business proposition.

Our study reveals that significant deterioration in loan quality and meeting higher capital standards and an upturn in credit growth are likely to remain a challenge for the banking sectors in the BRICS economies as slippages from large corporate may continue. Going forward, banks in our countries will need to move towards mandated higher capital standards. This implies that the BRICS should re-orient and review their business models to improve their operating efficiency through business process re-engineering, embracing technology more vigorously to render cost-effective, and speedier financial services. Banks should also shift their business strategy of chasing volume-growth to focus on recovery and building stronger balance sheets for creating sustainable wealth and rewarding the shareholders. Strengthening internal governance framework, credit discipline, and improving risk management capabilities of banks are the other areas for restoring the health of the banking systems in the BRICS economies.

Notes:

1. **Capital Adequacy Ratio (CAR)**:Capital Adequacy Ratio (CAR) is also known as the Capital to Risk-Weighted Assets Ratio (CRAR). It is the central feature of the

Basel Capital Accord. It is an analytical construct in which regulatory capital is the numerator and risk-weighted assets are the denominator. Assets are weighted according to factors representing their riskiness and potential for default. This ratio is considered the minimum necessary to achieve the objective of securing over time soundly based and consistent capital ratios for all international banks. National regulators track a bank's CAR to ensure that it can absorb a reasonable amount of loss and comply with statutory capital requirements. Bank capital determines the lending capacity and future growth prospects of banks.

2. **Bank Non-Performing Loans:** Bank Non-Performing Loan (NPLs) [3] is calculated by using the value of nonperforming loans as the numerator and the total value of the loan portfolio (including NPLs and before the deduction of specific loan loss provisions) as the denominator. According to income recognition and asset classification norms applicable to banking sector, loans are treated as non-performing when payments of principal and interest are past due by 3 months (90 days) or more, or interest payments corresponding to 3 months (90 days) or more have been capitalized (reinvested into the principal amount), refinanced, or rolled over (that is, payment has been delayed by agreement). NPLs reflect the quality of the bank's loan portfolio and adversely affect profitability and financial position of banks. Higher NPL ratio reflects the worsening quality of the loan portfolio and loan due diligence process.

3. **Bank Return on Equity (ROE):** The fact that besides internal generation of capital, banks now depend heavily on the capital market to raise funds they need. Entry into the capital market to raise money means they will have to create healthy ROE. To put it simply, the banking companies ROE primarily targets to satisfy shareholders. Banks use excessive financial leverage to improve net earnings for the shareholders. Because banks are highly leveraged, they earn a much higher ROE than they do on assets.

4. **Bank Return on Assets (ROAs):** The ROAs is one of the most commonly used accounting measures/ratios for the efficiency of banks. It is primarily an indicator of the managerial efficiency of banks; it indicates how capable bank management has been in converting assets into net earnings. It is calculated by dividing net income by average total assets. The higher the ratio, the more efficient are the operations of the banking sector. Even a small change, positive or negative, in bank's ROA may result in substantial change in its ROE.

5. **S**cheduled commercial banks in India constitute those banks which have been included in the Second Schedule of Reserve Bank of India (RBI) Act. 1934. RBI, in turn, includes only those banks in this schedule which satisfy the criteria laid down in Section 42 (6) (a) of the Act.

6. **BCBS** is the primary global standard setter for the prudential regulation of banks and provides a forum for cooperation on banking supervisory matters. Its mandate is to strengthen the regulation, supervision, and practices of banks worldwide.

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A Review on Financial Inclusion in India and Quest for Inclusive Growth

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Abstract

In India, several steps have been taken by the government in the recent past to endorse and offer different financial products and services to the mass people in order to reduce disparities which are obstacles for development. Although the term 'Financial Inclusion' was coined in India, in 2005, it was in practice since the early twentieth century. Financial inclusion can be measured through the activities of banks, Micro Finance Institutions and insurance. In our study, we have tried to measure financial inclusion in terms of banking activities following the criteria developed by CRISIL (Credit Rating Information Services of India Limited), and which is used in its Inclusive index to measure financial inclusion. According to CRISIL, the crucial indicators for measuring financial inclusion through banking activities may be bank branch penetration, deposit penetration and credit penetration. The present study determines the trend of financial inclusion in India by calculating the scores of financial inclusion year-wise with the help of the method of 'Max-Min Procedure to convert indicators into indices', during the time period 2010-2018, for the above three indicators of banking services. The result shows a remarkable progress towards attainment of financial inclusion, which may be a sign of inclusive growth in terms of availability and accessibility of financial products and services in India.

Keywords: Financial Inclusion, Development, Disparity, Inclusive Growth

JEL Classification: G2, E6, O1, I3

I. Introduction

Predominantly in rural India, the money lenders are very strong in credit markets and exploit mass population who have lack of knowledge of several financial services. To stop this phenomenon and for inclusive growth, spread of varieties of financial products and services with financial awareness of people are very much necessary. In the study

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of Demirguc-kunt & Klapper (2012), the severity of informal borrowing and saving are reflected in the context of underdeveloped regions as barriers to growth. Despite the fact that the term, 'Financial Inclusion' was coined in India, in 2005, the government started taking initiatives in this regard from the early twentieth century under the British rule observing the cry of poor people in remote areas. In the study of Hoda & Terway (2015), the authors have addressed agricultural credit policy to support rural India, for inclusive growth starting from the year of 1904, and particularly after nationalisation of commercial banks. Since the year of 2005, financial inclusion was started in India, in the mission mode to include all sections of the society under a single roof in providing financial services and to ensure justice. However, the provision of financial services may not be the only solution to reduce inequality. Common people should also sense the benefits. Financial education and awareness may help the people to grab the benefits of financial inclusion and lead better lives in a developing country like India.

Financial inclusion targets both, privileged and under privileged sections of the society. This mission refers to availability and accessibility of useful financial products and services to meet the needs of individuals and businesses at an affordable cost, and in a sustainable way. Financial inclusiveness opens the doors for families for smoothening consumption at present, and saving for future. It helps the businesses to invest and expand; which in turn can create employment opportunities. Although financial inclusion is likely to address primarily the under privileged section including unemployed, women, children, old and physically challenged people, but lack of financial literacy often becomes an obstacle for them to be included in the mission of financial inclusion. Digital financial solutions like mobile banking or internet banking for money transfer, payments, savings, investment, etc. become tough for them to manage. Not only the illiteracy excludes the under privileged section to utilise the benefits of financial inclusion, but their low income or savings, sometimes unemployment, geographical remoteness, etc. are also responsible for it. At the same time, the privileged section of the society can reap the benefits of digital solutions easily which save their time and energy. But without incorporating the vast population of rural India, it is unfeasible to bring success in the mission of financial inclusion at the desired rate. In the studies of Chibba (2009), and Iqbal & Sami (2017), financial inclusion is treated as a tool to alleviate poverty and promote inclusive growth. Hence, it is expected that financial literacy and awareness (with the help of government or non-government sources) may help the poor in remote areas to snatch the advantages of financial inclusion in order to drive away poverty.

In India, many government agencies and Non Government Organisations (NGO) have introduced several schemes to work for financial inclusion analysing the roles of banks, Micro Finance Institutions (MFI) and insurers. Several indices have been formed to measure financial inclusion with the growing needs of the policy makers. The Alliance for Financial Inclusion Core Set was the first step to establish a common measure of financial inclusion in the world; where the indicators are meant to measure the fundamental aspects of financial inclusion, access and usage of financial services, in a standard way. The Global Findex Report analyses data of 144 economies around the world to display the use of financial services by the people since 2011. In this context, India is not far behind. The Inclusix index was developed by CRISIL (Credit Rating Information Services of India Limited), on 25 June, 2013, to measure financial inclusion. In our paper we attempt to measure financial inclusion in India, in terms of banking activities. The three crucial indicators for measuring financial inclusion in terms of banking activities according to CRISIL are branch penetration, deposit penetration and credit penetration. Credit penetration is in the forms of Kisan Credit Card (KCC), General Credit Card (GCC), and Basic Savings Bank Deposit Accounts (BSBDA). In the study of Garg & Agarwal (2014), the authors have observed financial exclusion and inclusion both in India, over the time period 2010-2013, for over all development of the economy via the banks and initiatives taken by the government.

Earlier few studies have also been done in India, using CRISIL's Inclusix index to assess financial inclusion. The purpose of the study of Shah & Dubhashi (2015) was to review financial inclusion to understand inclusive growth and analyse the steps taken by banking authorities, government and Reserve Bank of India (RBI) in this regard. The study discussed the importance of CRISIL's Inclusix index, and assessed financial inclusion upon CRISIL's data of 2009-2011, for the whole country and segregating the regions as north, south, east and west. Improvement in the performance of banking services under the mission of financial inclusion in India is discussed in the study of Mittal & Shukla (2014). The authors used the data of financial inclusion developed by CRISIL for the period 2009-2011, of the banking sector. In both the studies, the results reflect the occurrence of financial inclusion during the study period, but come to the conclusion that modernisation of the banking sector along with the initiatives to reach the poor and needy people are utmost needed for financial inclusion to get success in India.

II. History of financial inclusion in India

Even as to discuss the initiation of financial inclusion in India, it is to be mentioned that Government of India tried in many ways to promote and provide financial services to the common people starting from the year of 1904, through the formation of Cooperative Credit Societies Act. In 1955, the State Bank of India was created. In 1969, 14 commercial banks and in 1980, 6 more commercial banks were nationalised. Regional Rural Bank was set up in 1975 and in 1982, National Bank for Agricultural and Rural Development (NABARD) was established. Later on, in 1992, Self Help Group (SHG) – Bank linkage brought a boost to the initiatives for financial inclusion. But formally, since 2005, financial inclusion was initiated in India, in the mission mode.

The term 'Financial Inclusion' was coined in April, 2005, in the Annual Policy Statement presented by Y. Venugopal Reddy, the then Governor of RBI. Mangalam, in punducherry was the first village in India, where the households were fortunate to obtain the assistance of financial inclusion. Later on, RBI permitted commercial banks to make use of the services of NGOs, SHGs, MFIs, and business correspondents for providing financial services to the common people. Among the recent initiatives taken by the government, expansion of bank branches and ATM services; launch of no-frill accounts; formation of KCC guidelines and Business Correspondence model; promotion of financial literacy programme; creation of Financial Inclusion Fund and Technology Fund (Rangarajan, 2008); promotion of ADHAR Card for Indian nationals, Swabhiman, Swabhiman movement, and Pradhan Mantri Jan Dhan Yojana, etc. are notable.

III. Objective and Methodology of the Study

Keeping in view the above measures taken for financial inclusion in India, via the banking sector, the present paper attempts to extend the existing literature. The study tries to assess financial inclusion over the time period 2010-2018 (which is not analysed earlier), in India, in terms of banking activities following CRISIL's criteria of measurement.

In this regard, methodology of the study is discussed. Our research study is based on secondary data collected from several reliable sources. In our study we attempt to analyse India's performance in achieving financial inclusion over the time period 2010-2018, taking into account of some basic banking service indicators namely, branch penetration, deposit penetration and credit penetration, prescribed by CRISIL.

In the study, banking service indicators (branch penetration, deposit penetration, credit penetration) in number in per lac of population in India are calculated over the time period 2010-2018. After that, the rates of change of banking service indicators in per lac of population in India are calculated over the same time period and the results are shown graphically.

To measure financial inclusion in terms of the three above-mentioned indicators of banking services, three separate indices have been formed with respect to each indicator with the help of the method, 'Max-Min procedure to convert indicators into indices', and in turn into indices scores for each year during the studied time period. The basic formula for converting indicator value (V) into an index score (I) is given by,

$$I = (V - \text{Min Value}) / (\text{Max Value} - \text{Min Value})$$

In the formula, Min Value is the minimum admissible value (lower bound) and Max Value is the maximum admissible value (upper bound). The index score ranges from 0 to 1. This approach of measuring financial inclusion is similar to the approach used by United Nations Development Programme (UNDP) for calculation of some familiar development indices like HDI (Human Development Index), GDI (Gender Development Index), HPI (Human Poverty Index), etc. The authors like Rahman (2012), Sarma (2012), etc. have exhibited that the measurement approach used in the human development literature can also be applied to measure financial inclusion.

In our study, equal weightage has been given to each indicator of banking services as of their equal importance and in the absence of any predefined criterion for attaching weight. Finally, the arithmetic mean of the indices scores of the three indicators of banking services for each year has been calculated to get the overall score of financial inclusion for that particular year. In this way the scores of financial inclusion in India, for the period 2010-2018, have been calculated and reflected as a trend graphically. The higher the index score, higher the rate of financial inclusion and vice versa.

Section IV deals with the result and discussion of the study. Finally, in section V, some concluding remarks have been presented.

IV. Results and discussion

It is clear from the above discussion that financial inclusion may play a vital role in achieving inclusive growth in an economy. Its aims are extended towards sustainable development. In this section we have tried to analyse financial inclusion in terms of bank operations in India, over the time period 2010-2018.

To discuss financial inclusion in terms of banking activities, number of branches of commercial banks in per lac of population, number of bank deposit accounts in per lac of population and number of bank credit accounts in per lac of population have been calculated first during the period 2010-2018, for the economy and depicted in [Table 1].

Table: 1. Indicators of banking services in per lac of population

Years	Number of bank branches in per lac of population	Number of deposit accounts in per lac of population	Number of credit accounts in per lac of population
2010	6.90	59538.24	8037.07
2011	7.27	64795.37	10683.13
2012	7.79	71355.06	13497.57
2013	8.32	81594.87	17137.11
2014	9.11	94682.49	22406.54
2015	9.67	109902.70	34362.43
2016	10.08	124281.10	39788.30
2017	10.51	136453.80	44223.36
2018	10.53	141318.90	43914.87

Source: Calculated by authors

The data show a sharp and consistent increase in the number of bank branches and deposit accounts- all in per lac of population, over the time period 2010-2018, in India. However, in case of credit penetration, the number of credit accounts in per lac of population has been perceived as increasing during the time period 2010-2017, with a slight fall in the number in the year of 2018, compared to the previous year.

It is likely that the rate of change of a particular parameter over a specific time frame can capture the performance of that parameter, and hence it is always better to consider the rate of change of banking service indicators instead of considering only the mere numbers during the study period. The rates of change in the number of three banking service indicators in per lac of population have been calculated over the same data and depicted in [Table 2].

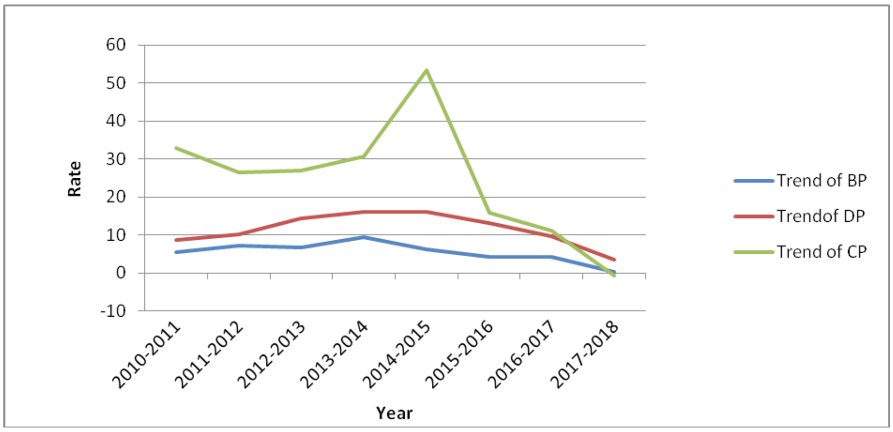
Table: 2. Rates of change of banking service indicators in per lac of population

Years	Rates of change in the number of bank branches in per lac of population	Rates of change in the number of deposit accounts in per lac of population	Rates of change in the number of credit accounts in per lac of population
2010-2011	5.38	8.83	32.92
2011-2012	7.13	10.12	26.34
2012-2013	6.81	14.35	26.96
2013-2014	9.45	16.04	30.75
2014-2015	6.14	16.07	53.36
2015-2016	4.27	13.08	15.79
2016-2017	4.25	9.79	11.15
2017-2018	0.24	3.57	-0.70

Source: Calculated by authors

The data demonstrate that the rate of increase in the number of bank branches was highest during the time period 2013-2014, in India, and then onwards it has begun to fall. In case of deposit penetration, the rate of increase in the number of bank deposit accounts has increased during the period 2010-2015, and then onwards it has begun to decrease. Further, the rate of increase in the number of credit accounts was highest in 2014-2015. After that a steady and drastic fall in the number of credit accounts has been perceived. Trends of the rate of change of the three banking service indicators- all in per lac of population, over the time period 2010-2018, in India, are shown in [Figure 1].

Figure: 1. Trends of the rate of change of the three banking service indicators- all in per lac of population



Source: Authors' own

To measure the scores of financial inclusion year-wise for the three prescribed banking service indicators, the method of 'Max-Min' procedure to convert indicators into indices' has been used for each indicator over the time period 2010-2018. The year-wise indices scores are depicted in [Table 3].

Table: 3. Scores of financial inclusion in terms of the three banking service indicators

Years	Scores of branch penetration	Scores of deposit penetration	Scores of credit penetration
2010	0.00	0.00	0.00
2011	0.10	0.06	0.07
2012	0.25	0.14	0.15
2013	0.39	0.27	0.25
2014	0.61	0.43	0.40
2015	0.76	0.62	0.73
2016	0.88	0.79	0.88
2017	0.99	0.94	1.00
2018	1.00	1.00	0.99

Source: Calculated by authors

The score of financial inclusion in overall banking services for a particular year has been calculated by taking arithmetic mean of the scores of the three indicators of banking services, putting equal weightage to all the indicators because of their equal importance. Accordingly, the scores of financial inclusion for the overall banking activities have been calculated for the entire time period 2010-2018, in India, and depicted in [Table 4].

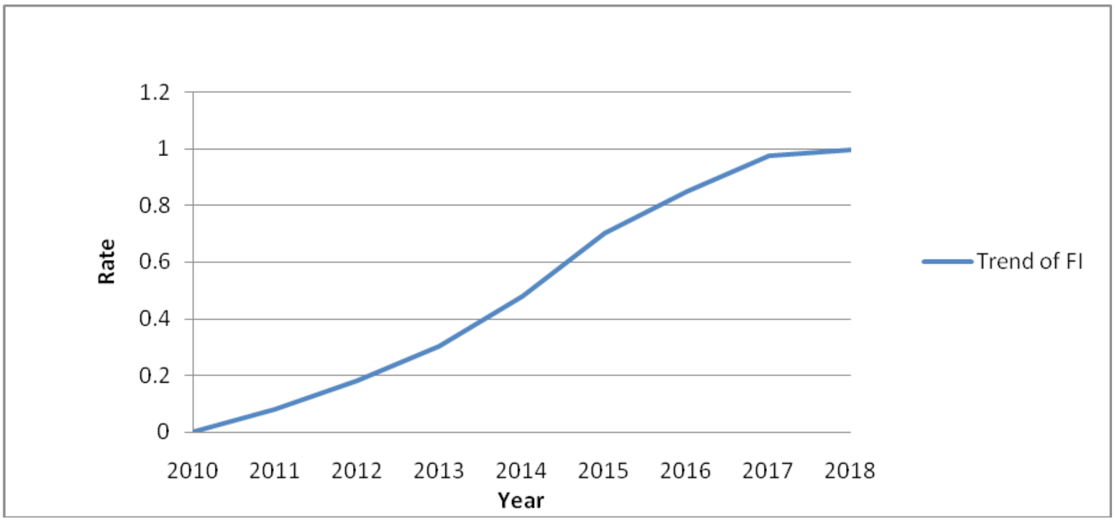
Table: 4. Scores of financial inclusion in overall banking services

Years	Scores of financial inclusion
2010	0.00
2011	0.08
2012	0.18
2013	0.30
2014	0.49
2015	0.70
2016	0.85
2017	0.98
2018	0.99

Source: Calculated by authors

According to CRISIL, if the score of financial inclusion (in per cent) is greater than 55, then it shows high rate of financial inclusion. Similarly, the score in between 40.1-55.0 shows above-average rate of financial inclusion, the score in between 25.0-40.0 shows below-average rate of financial inclusion, and the score less than 25 shows low rate of financial inclusion. Trend of financial inclusion in terms of overall banking services in India, over the time period 2010-2018, is shown in [Figure 2].

Figure: 2. Trend of financial inclusion in over all banking services



Source: Authors' own

In the study considering 2010 as the base year, the scores of financial inclusion show significant progress during the studied time period. Moreover, up to 2012, the rate of financial inclusion was low; in 2013, the rate of financial inclusion was below the average level; in 2014, the rate of financial inclusion was above the average level; after that the economy witnessed high rate of financial inclusion according to CRISIL's criteria of measurement.

V. Conclusion

The fact comes out from the study that at a remarkable rate financial inclusion has been taken place in India, via banking operations, over the time period 2010-2018, in terms of availability and accessibility of banking services. The mission of financial inclusion targets the Sustainable Development Goal 1 (SDG 1); which aims at reducing poverty. It is expected that through the expansion and modernisation of banking sector activities along with the promotion of financial education to create awareness, more people may be brought under the mission of financial inclusion in India. This initiative will help to channelise saving and raise the purchasing power of common people which in turn may help in reducing poverty and inequality. In this way in a true sense development may take place and justice may be assured to every Indian citizen.

Limitations of the study are rooted in exhaustive analysis incorporating the other banking service indicators like ATM service, pension scheme, amounts of total credit and deposit, etc. to assess financial inclusion. Assessment of account ownership and availability of the lines of credit are also important in this regard so that productive use of credit is possible. Evaluation of the workings of MFIs and insurance along with the banking sector are likely to capture financial inclusion completely in India. Additionally, at state-level or region-wise (north, south, east and west) consideration of financial inclusion, segregation of data between developed and under developed regions to assess financial inclusion, extension of the time period to project the trend of financial inclusion in a more realistic way may also be useful to certify the result.

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Regional disparity in MSME growth: An analysis from the perspective of financial penetration in West Bengal

Debjani Nandy[1] & Dr. Jyotish Prakash Basu[2]

Abstract

This study intends to probe the effect of regional variation of financial penetration of formal institutions on regional growth disparity of MSMEs in West Bengal. Data during the period 2006-2015 from West Bengal Finance Corporation (WBFC) as the chief source of long term finance and Scheduled Commercial Banks (SCB) as primary supplier of short term loan to the MSME sector have been considered for this purpose. An index of regional financial penetration of SCB as per the indexing process followed by IMF Financial Access Survey and repayment quotient of WBFC has been constructed . The study finds that the growth of MSME is significantly related to higher financial penetration of both WBFC and SCB but despite this fact these formal institutions have penetrated significantly more in those regions which have higher gross domestic product and vice versa. It is also seen that 14.29% regions have received 58% of WBFC disbursement while the remaining 85.71% regions received a meager 42% , with the additional fact that regional disbursement from WBFC has not corresponded to regional repayment prudence. The paper has important policy implication for revamping the state of financial inclusion of regional MSMEs to enhance growth of the backward regions and hence economy as a whole.

Key words: financial penetration, WBFC, SCB ,MSME ,regional disparity, gross domestic product, index of financial penetration.

JEL Classification: G20, G21, O23, O47

I. Introduction

MSMEs contribute the highest amount in the industrial output of West Bengal. Being strategically located as the node for the seven North –Eastern states , West Bengal accounts for 14% of country's total MSMEs, second only to Uttar Pradesh and third largest employment in MSMEs in India according to Economic Census 2013-2014. But there

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exists massive regionwise disparity in growth, investment and employment in this sector of the state. As findings from Sen and Salim (2013) show cumulative number of units of MSME and investment over 2006-07 to 2013-14 have consistently been much higher in certain regions like Kolkata ,Howrah, North and South 24 Parganas ,Burdwan etc over Purulia. Uttar and Dakshin Dinajpur etc. This is further reinstated by another study from Manna and Mistri (2018) with the additional revelation that the districts with higher growth of MSMEs have higher gross district domestic product and vice versa. Studies from around the world have emphasized the connection between financial penetration of formal institutions to the MSME sector in terms providing a wide range of need based fair and safe financial products and services and serving easy and quick access to these pervasively, and growth of this sector. Finance availability is the crucial point of running business, and MSMEs most often fall outside the net of formal credit due to majority having an unorganized nature of operation. According to a study from IMF (2019) average share of MSMEs among the total amount of bank lending in CCA countries like India is a meager 7% in average showing the extent of institutional credit gap. Although it has been seen from the macro level analysis of the same study that one percent increase in small enterprises formal financing in MENAP and CCA regions lead to a increase of 1.3 percent employment, raises labour productivity by 2.3 percentage points and boosts an economic growth of an average of 0.3percent annually, much more than larger enterprise, which gives a critical insight to the immediate urgency in raising financial penetration to MSMEs especially in the backward economies. As per a report of IFC (2018) low income statesand

North- Eastern states in India constitute a consolidated 24.2% of formal finance gap to this sector owing to low level of bank penetration and high degree of risk aversion. Although reports at the district level is not available regarding the same issue but this amply reflects the aspect of regional variation of financial inclusion on growth variation of regional MSMEs. In view of the above backdrop the objectives of this paper are asfollows-

Objectives

1. To examine the extent of variation in regionwise MSMEs in West Bengal in terms of units andinvestment
2. To understand the importance of regionwise performance of SCB and WBFC to the regional growth of MSME
3. To examine whether regional performance of SCB and WBFC vary with respect to regional gross domesticproduct.
4. To make regional inequality analysis of WBFC branch performance in terms of loan disbursement andrecovery

Hypothesis

First, number of MSME units are higher in those regions which have higher disbursement of loans from WBFC and higher value of index of financial penetration of SCB

Second, WBFC branches disbursement of loan and scheduled commercial banks' penetration are higher in those regions which have higher gross domestic product

Third, there is no correlation between regional share of disbursement from WBFC and regional repayment quotient of WBFC loan

II. Literature Review

A report from Dvara group (2017) shows that among a list of the most significant factors which hold back growth, 20% of MSMEs point out unavailability, uneasy access and delayed payment of formal finance constitute the primary cause for low development of MSMEs in India .While reports from Economic Census 2013-14 show only 2.3 percent of all non agricultural establishments utilize finance from formal institutions as the predominant form of funds wheras self finance constitutes 78.2 percent. According to the MSME knowledge series 2013, the estimated credit gap from formal institutions faced by micro enterprises stand at 73% of the total demand as at end of March 2012. Literatures have discussed the low penetration of formal fund in MSME sector from mainly two points of view. First , from the demand side, Mabula (2018) has shown that lack of financial literacy is the main cause that impedes the entrepreneurs from approaching the formal institutions while, Masiyamoorthy, Vidhya and Rajendhiran (2017) reflect on the increase of firm performance owing to financial literacy .Kane (2019) have seen that although at the initial stage of growth the firms prefer informal sources of fund to formal ones but with achieving higher eachelon of growth the firms eventually open up to the formal finance . Singh (2016) has further discussed in his paper the problems faced by firms in acquiring fund from different sources at different stages of growth . Second, from the supply side point of view, study from Lakuma, Marty and Muhumuza (2019) reveal MSME firms are more credit constrained than large firms although small firms in Uganda has been seen to profit more from financial inclusion than larger counterparts but they are discriminated on the basis of size for loan disbursal. A probable reason for this as discussed by Biswas, Srivastava and Kumar (2018) is that ,banks are skeptical about these small players on asymmetry of information, and hence adverse selection market imperfection, and moral hazard, which in due course lead to market failure .So seeing the importance of financial access as the critical factor of success of MSME which has been enforced by scholars all over the world Riswati (2017), Olowe, Moradeyo and Babalola (2013) etc, it is clear that without focused policy intervention from govtthefruitsoffinancialinclusionoftheMSMEsectorasascertainedbythe findings of IMF(2019) in the survey of small and medium sized enterprises in the Middle-East and Central Asia , World Bank group (2018) in the form of not only higher employment and GDP but additional higher tax GDP ratio, decreased inflation etc would be a far off cry.

In respect of very few literature available on the impact of the state of regional financial inclusion of MSME in West Bengal, two are mentionworthy. Kanrar (2013) has shown that there exists huge districtwise disparity of financial inclusion of MSME here. Working with WBFC, the study highlights that disbursement from this institution has systematically been significantly low over a period of 1999-2012 ie 13 years to the MSMEs of the industrially backward regions of this state compared to the advanced counterparts. However he had not thrown any light on the importance of this institution as the source of long term finance on the growth aspect of MSMEs in this state neither has he cast importance on whether the low disbursement to the industrially backward districts was related to lower mobilization of disbursed fund in these places to generate income . In a slightly different type of study, working with the agricultural sector Chattopadhaya (2011) has shown the status of financial penetration of SCB in different districts of West Bengal. He finds that even after several years of financial reform SCB penetration systematically underscores in rural areas over years, compared to urban counterparts and has stark disparity over differentdistricts.

III. Methodology

Selection ofregions

Fourteen regions have been chosen as per the location of regional offices of WBFC. These are i)Kolkata, Howrah and South 24 Parganas ii)North 24 Parganas iii)Burdwan iv)Hooghly v)Uttar and Dakshin Dinajpur vi)East and West Mednipore vii)Bankura viii) Birbhum ix)Murshidabad x)Nadia xi)Purulia xii)Maldah xiii)Cooch Behar xiv)Darjeeling and Jalpaiguri. Performance of these branches have been analysed to understand the regional variation in service to MSME. As such SCB's regional performance of these 14 regions have been considered.

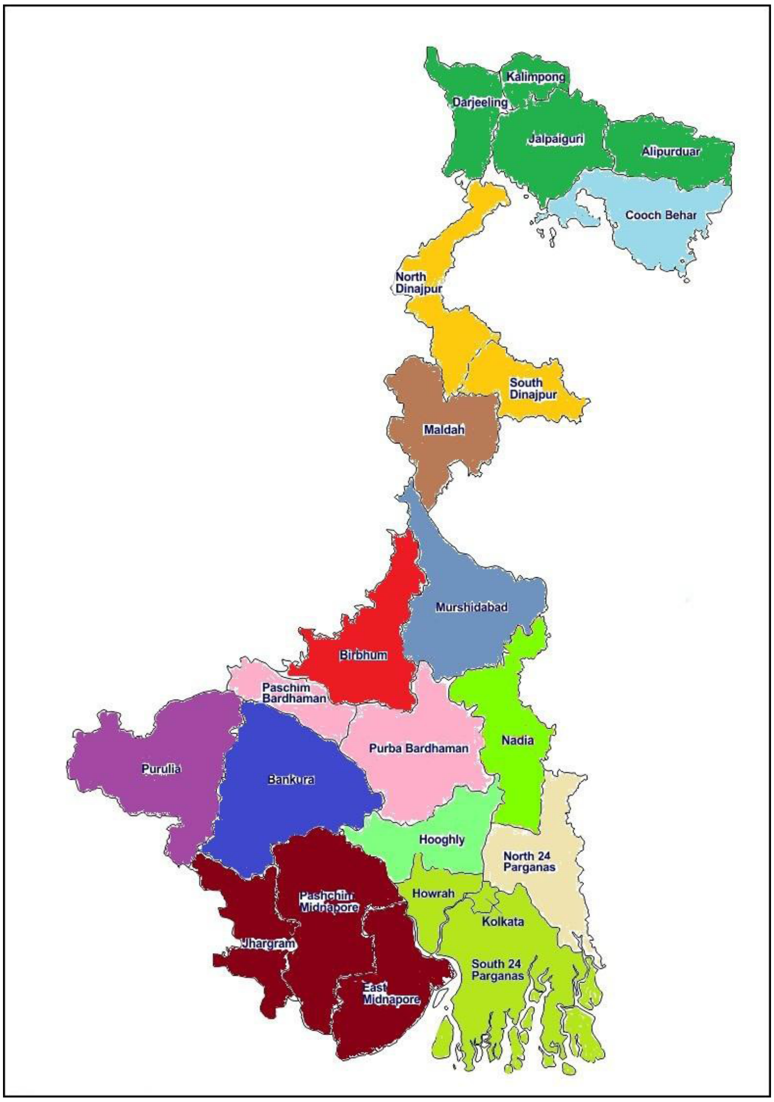


Fig 1- Map of West Bengal showing the fourteen selected regions

Data have been sourced from secondary sources like RBI data source, various journals MSME publications etc. Correlation coefficient with scatter diagram plot fitted with trend line has been used to analyze the relationships between different variables. The software E-views has been used for this purpose.

Regional repayment quotient of WBFC loan has been constructed to show the region's capacity to mobilize the disbursed amount to generate extra income so that they can repay more than what they borrowed.

The formula is= ((repayment-disbursement)/disbursement)*100

Unlike WBFC, which caters to only MSME sector , commercial banks serve to all sectors of the economy. Financial penetration of scheduled commercial banks to MSME sector exclusively cannot be analysed due to lack of data. As such regional financial penetration of scheduled commercial banks have been analysed in general to get approximate idea of commercial banks' outreach to MSME sector in different regions.

Financial outreach of scheduled commercial banks is multidimensional of several indicators like physical distance from the point of access, usage by customers etc which gives a partial picture if discussed individually. For the presentanalysisafewindicatorshavebeenchosenaspertheindicatorssetby IMF Financial Access Survey and based on availability of data and has been developed into an index based on the popular method of indexing used by UNDP to construct HDI, for the sake ofanalysis.

Indexing of financial penetration of scheduled commercialbanks

A pervasive financial system implies how much financial services are easily available to its users and the span of these services across the length and breadth of the domain. Two important indicators are

Access indicators- These show how much the financial service like bank branches and point of sale have penetrated the economy, or demand side barriers that customers face to access financial institutions such as cost or information..

Usage indicators - These help in measuring how clients use financial services, or in other words their dependence on formal financial institutions to manage their balances.

For the present study, necessary data was available in RBI publication in 2010, Statistics of deposits and credits of Scheduled Commercial Banks encompass commercial banks (Public Sector Banks, Regional Rural Banks, and Private sector banks) and Cooperative Banks (State cooperativebanks,

Central Cooperative banks and Primary credit societies). The dimensions chosen are banking penetration, credit penetration and deposit penetration.

Table 1 – Dimension and indicators to measure financial penetration

Dimension (d_i)	Indicators	Significance
(d1) Banking penetration	Number of branches of all scheduled commercial banks of a district availableper 100,000 population of the district.	Measures how accessible is financial services of a district i.e. the depth of outreach of financialservices
(d2) Credit penetration	Number of outstanding loans per 1,000 adults of each district.	Measures the extent of access to formal credit by borrowers.
(d3) Deposit penetration	Number of deposit accounts per 1,000 adults of each district	Measures how much people depend on formal institutionsto save their deposits

Note- Consistent with IMF-FAS

Construction of theindex

The index has been created in the same way as HDI has been constructed by UNDP The index has been constructed in two steps-

<u>Step 1, Normalization of parameters-</u>,

Since different dimensions have been used to construct the composite index, in order to make the dimensions unit free and comparable and for the sake of easy aggregation, the dimensions have been normalized. For, this purpose d_i has been constructed suchas,

$d_i = A_i = m_i / M_i - m_i$

Where,

A_i= Actual value of dimension i for the region to be computed

M_i= Observed maximum value of dimension i over all regions

mi= Observed minimum value of dimension i over all regions

The value of d_i lies between 0 and 1, 0<= di <=1

So that, higher the region’s performance in the respective dimension higher will be the value of the di

Step 2, Aggregation of d_i s to construct the composite index-

After constructing the d_i s, the index of financial penetration for the i^{th} region is measured by the normalized inverse Euclidean distance of d_i from the ideal point 1

The formula is –

Index of financial penetration of region i (IPI_i)=

1- (root($(1\text{-d}1)^2 + (1\text{-d}2)^2 + (1\text{-d}3)^2$))/root 3)

In the numerator of this formula the second component shows the Euclidean distance of di from the ideal point 1, normalizing it by root 3 and subtracting from 1 gives the normalized distance. The normalization requires to be done so that the value obtained lies between 0 and 1 .The subtraction from 1 is done to show that the higher value represents higher level of financial penetration. The regionwise index of financial penetration of scheduled commercial banks has been shown in the APPENDIX-II.

IV. Results anddiscussion

The variation in the regional cumulative number of MSMEs and corresponding cumulative investment over the period of 2006-2015 have been shown in Fig 2.

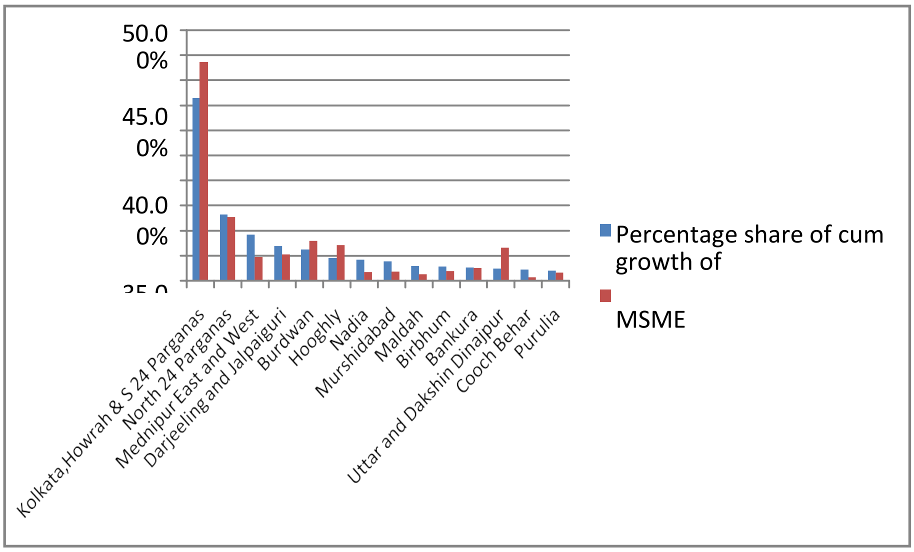


Figure 2- Percentage share of cumulative growth of MSME enterprises and investment during 2006-2015 in different regions of West Bengal, Source- BGBS 2019,Govt. of W.B.

It is clearly seen that regions Kolkata and others ,North 24 parganas etc bag the highest share of both cumulative number of MSMEs and as such have higher investment in MS-

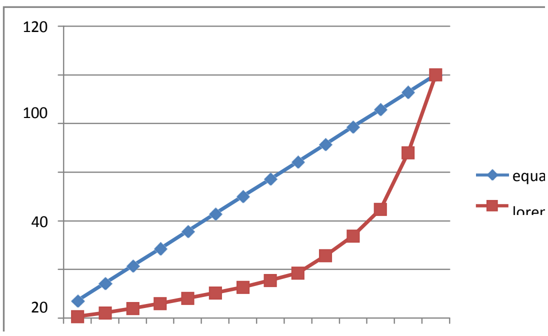
MEs during the period 2006-2015 whereas the share of Purulia, Cooch Behar etc in both these parameters is negligible. Hence this shows that there exists wide variation among regions in distribution of both number of MSMEs and investment during this period.

To understand the importance of financial penetration of SCB and WBFC on the growth of MSME and higher penetration of these institutions in more prosperous regions , correlation coefficient has been used The results of the Pearsonian correlation of financial penetration of SCB and disbursement of WBFC with regional cumulative number of MSMEs over the period 2006-2015 is given in Table 2. The table also shows the relationship between regional gross domestic product and financial penetration of SCB and WBFC respectively

Table 2- Pearson's Product Moment Correlation Coefficients between disbursement of WBFC , financial index of SCB cumulative no. of MSMEs and regional gross domestic product

Value of correlation coefficients	Disbursement of WBFC	Financial index of SCB
Cumulative number of MSMEs	0.83*	0.95*
Regional gross domestic product	0.87*	0.84*

Note-* implies significant at 1% level of significance



The Lorenz curve in Fig 3 depicts the amount of inequality in the amount of disbursements during the period of 2006-2015 of WBFC in differentregions in WestBengal.

Fig 3– Lorenz Curve showing inequality in WBFC disbursement among regions

Source- Lorenz curve is author's own calculation

Table 3 shows the comparison between the percentage of WBFC disbursement available to different regions to the regional repayment quotient to reveal whether those regions which could mobilize fund better to have higher repayment and quotient value enjoy higher percentage of disbursement or not.

Table 3- Regionwise share of disbursement and recovery quotient of WBFC branches

Regions	% share of the regional disbursement	100x(Recovery- Disbursement)/ Disbursement
Kolkata,Howrah & S 24 Parganas	32.14%	-2.37%
N 24 Parganas	2.97%	-13.28%
Burdwan	10.92%	20.24%
Hooghly	2.16%	35.95%
Dinajpur Uttar & Dakshin	1.90%	-30.42%
Mednipore East & West	23.29%	7.03%
Bankura	8.14%	28.51%
Birbhum	0.69%	83.59%
Murshidabad	2.88%	32.35%
Nadia	2.37%	7.01%
Purulia	1.77%	35.22%
Maldah	1.49%	63.91%
Cooch Behar	2.11%	-8.86%
Darjeeling & Jalpaiguri	7.15%	3.55%

Source – Repayment quotient is author's own calculation

As seen from Table 2 that regionwise distribution of MSMEs have very significant relationship with regionwise WBFC branches' distribution of loans and scheduled commercial banks index of financial penetration. The correlation coefficient r^2 between regionwise scheduled commercial banks Index Of Financial Penetration and cumulative number of MSMEs from 2006- 13 is 0.950142 (Fig 5 in Appendix II) and the computed t-statistic with 12 degrees of freedom is 10.56 which is significant at 1% level. Similarly, the correlation coefficient r^2 for regionwise WBFC disbursement and cumulative number of MSMEs from 2006- 2013 is 0.83 (Fig 4 in Appendix II) and t-statistic is 5.18 with 12 degrees of freedom which is significant at 1% level. Therefore the first null hypothesis has been rejected . Therefore it is clear that financial penetration of WBFC and scheduled commercial banks play a very important role in the growth of MSMEs region wise.

But although the financial availability from SCB and WBFC is so crucial, it is seen that WBFC branch performance in terms of disbursement of loan as well as scheduled commercial banks financial penetration is skewed towards those regions which have higher gross domestic product level .It can be seen from Table 2 that both WBFC loan disbursement and financial penetration of SCB are highly and significantly correlated to regionwise gross domestic product . The correlation coefficient for regionwise WBFC branch disbursement with regionwise gross domestic product (Fig 6 in Appendix II) is $r^2= 0.87527$ and t-statistic = 6.216391 which is significant at 1% level of significance with d.f

=12. And the correlation coefficient for regionwise index of financial penetration of SCB (Fig 7 in Appendix II) with corresponding gross domestic product is $r^2 =0.843793$ with t-statistic = 5.446535 with d.f=12. Therefore this indicates the rejection of the second null hypotheses at 1% level of significance implying more prosperous regions have batter financial inclusion compared to their weaker counterparts.

From Fig 3, it is seen that only 14.29% regions out of total have received 58% of WBFC disbursement while 85.71% regions have clammoured for the remaining 42% reflecting the amount of inequality in disbursement (Fig 8 in Appendix II). The correlation coefficient between regionwise share of WBFC disbursement and repayment quotient is -0.2726 which is negative and small implying that disbursement from WBFC has not corresponded to the repayment capacity of the regions and regions with lower repayment prudence have bagged higher disbursement and vice versa.

Therefore, in short, MSMEs of those regions having high gross domestic product have higher access to formal finance and that too irrespective of capacity to repay and since MSMEs thrive in those regions which have higher access to formal finance, therefore it can be clearly seen why regions with higher gross domestic product have higher concentration of MSMEs

This study thus supports the findings of, Mistri et al (2018) that there exists a positive relationship between domestic product of districts and MSME concentration and goes further to establish that amidst other causes ,one viable reason for this relationship is the disparity in financial penetration of the formal financial institutions regionwise.

V. Conclusion

This study comes to the conclusion that although in recent times the extent of financial outreach of the formal institutions have increased yet this has not pervaded all the sectors of West Bengal alike. The heterogeneity in this respect in MSME sector alone, considered as one of the weak sectors is profound. As a result several regions with immense potential to uncover extremely rich traditional artsmanship with national and international market like bambooworks, pottery, dokhra of Dinajpur, madur of Mednipore, sitalpati of Cooch Behar, folk musical instruments of purulia and several others remain unexplored.

The study was constrained by lack of contemporary comparable data, particularly data pertaining to MSME banking with scheduled commercial banks was unavailable which could have increased the accuracy of the study to a high degree .Besides WBFC data relating to districtwise penetration during 2006-2012 was unavailable for which regionwise branch performance had to beconsidered.

VI. Policy Prescriptions

In view of the above discussion it has become obvious that Govt needs to take comprehensive focused measures to address the situation both from demand and supply side perspectives in order to remove all financial debacles of the sector. The necessary policy manoevres in this respect are the following;

First, to improve financial availability in the regions which have fallen backwards in terms of growth of MSMEs Government requires empowering WBFC with higher recapitalization especially for these regions.

Second, encouraging higher loans disbursal with higher monitoring of timely credit disbursal and verification to avoid NPA.

Third, as for financial penetration of Scheduled commercial Banks, Govt. requires not only to ensure establishment of bank branches in the rural interiors of each districts but also provide financial literacy to the masses to encourage them to avail formal finance .This will not only curb the unscrupulous activities of the moneylenders who are among the most important sources of rural finance, so that MSME productivity gets a boost, but will also raise the financial mobility and independence of theeconomy.

APPENDIX-I

Table-4 Regionwise Index of Financial Penetration of Scheduled CommercialBanks

Regions	**Index of SCB Penetration**
Bankura	0.14
North 24 Parganas	0.24
Murshidabad	0.03
Hooghly	0.25
Coach Behar	0.09
Burdwan	0.26
Kolkata,Howrah, S 24 parganas	1
Maldah	0.06
East and West Mednipore	0.13
Nadia	0.1
Purulia	0.08
Uttar and Dakshin Dinajpur	0.01
Darjeeling and Jalpaiguri	0.2
Birbhum	0.18

Source- Author's own calculation based on data available from RBI 2010

APPENDIX- II

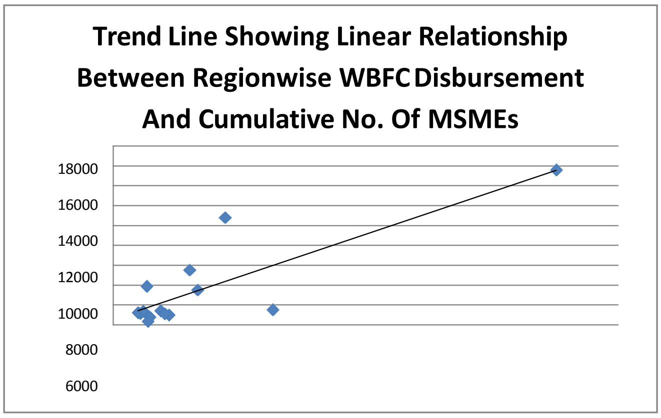
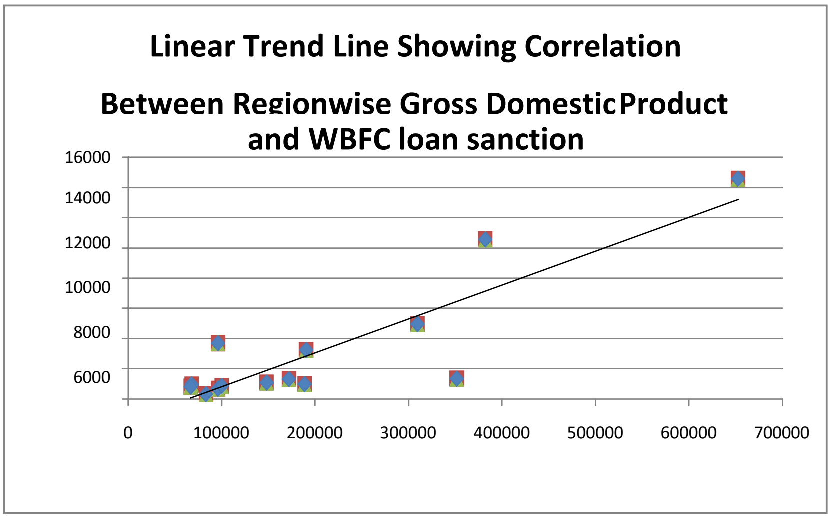


Fig 4: Trend line between regionwise WBFC disbursement (in lakhs) and cumulative number of MSMEs from 2006- 2013

Source- BGBS 2019, Govt. of West Bengal



Regionwise Gross Domestic Product

Fig 5 Trend line between regionwise scheduled commercial banks financial penetration and corresponding cumulative number of MSMEs from 2006- 2013

Source- author's calculation

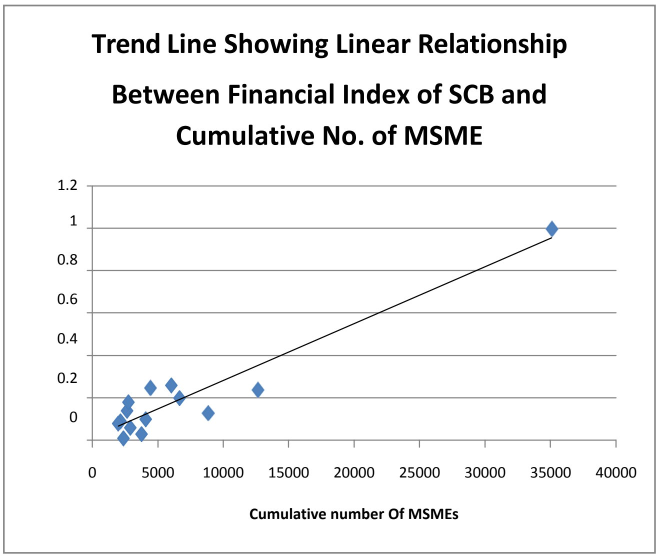


Fig 6: Linear trend line showing relationship between regionwise gross domestic product and WBFC disbursement

Source- Bureau of Applied Economics and Statistics, Govt of West Bengal, 2013-14

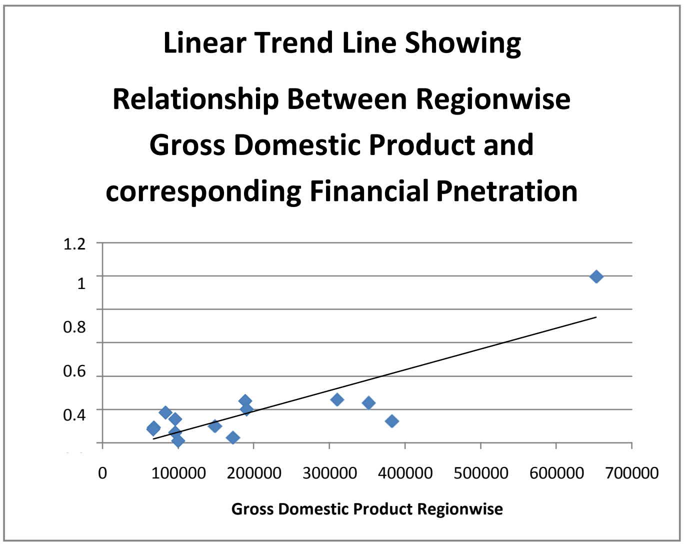


Fig 7. Linear Trend Line showing correlation between regionwise gross domestic product and SCB's index of financialpenetration

Source- author's own calculation

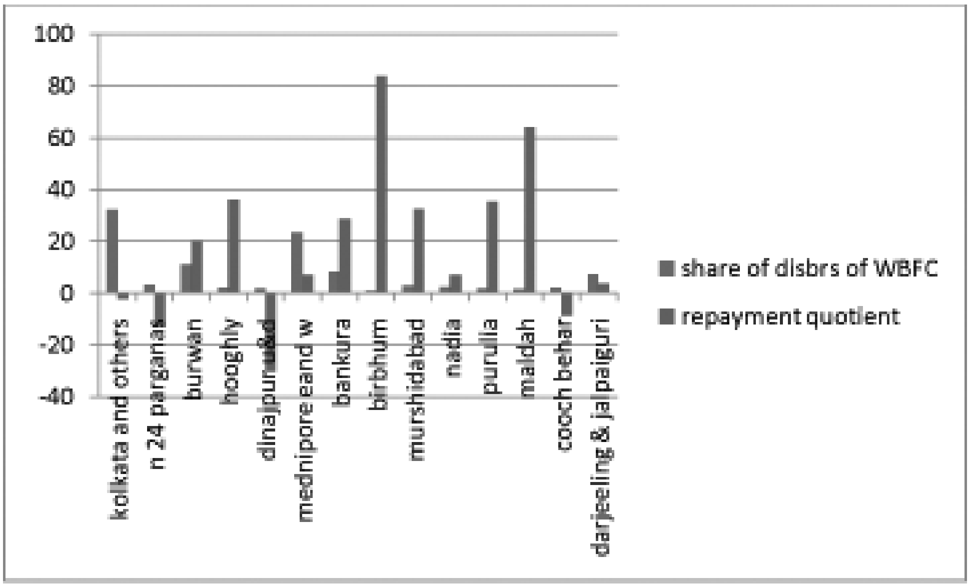


Fig 8- Bar diagram showing relationship between regionwise share of WBFC disbursement and repayment quotient

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GLOBALISATION, TECHNOLOGICAL PROGRESS AND NATURE OF WORK – AN INTROSPECTION

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ABSTRACT

Globalisation in the sense of opening up of domestic economies to international trade and factor mobility has led to acceleration of growth profile of many countries including the developing ones. But such growth acceleration has been accompanied by falling employment elasticities in many of the developing countries and there is greater flexibilisation of the labour market behaviour and increasing informalisation of the employment, which is a serious consequence of the globalisation process unleashed in the world economy. Recently, increasing robotisation and digitization of the economies in developed nations and the increasing use of artificial intelligence in the production process have raised concerns for job loss and changes in the nature of work in the context of globalization induced linkages in the world economy. The present paper provides an analytical review of such employment contraction and labour market flexibilisation in developing countries in terms of the technological advancements that the world economy has been experiencing. Section II discusses the labour market impacts of the globalization process and the threats of jobless growth in the world economy. In section III, we focus on the nature of technological shocks of increasing robotisation and artificial intelligence and their impacts on job losses and changes in the nature of work. Section IV concludes.

Key Words: Globalisation, Technological Change, Conditions of Work, Automation.

JEL Classification Codes : F63, J24, J81, O33.

I. Introduction

Much has been talked about the impact of technological progress on economic growth, and the effects of technology transfer on developing nation's growth performance. The entire history of industrialization in the present day developed countries records numerous instances of the transfer of knowledge not only across national boundaries, but also within a nation between various sectors, and within a sector, between various producing

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units, although the transmission mechanisms varied significantly in each case. The neo-classical models of economic growth – exogenous as well as endogenous- point to the consequences of technological change on steady state growth trajectories of capitalist economies under conditions of perfect competition . In the present day literature on development economics, technology issues have received relatively more attention than in earlier days (1950s and 1960s), when the emphasis was on capital accumulation and on import-substitution vs. export-promotion in less developed economies. Perceptions about the role of technological progress in economic development have undergone substantial changes over time, and we have noted substantial literature on notions like 'technological gap', 'technological dependence', 'inappropriate technology' and technological exploitation by MNCs. The focus of the debate , now has shifted to the effects of technological change on employment, to changes in the nature of work that technological breakthroughs have brought about in advanced as well as emerging market economies that are integrated through the process of globalization , and the consequential behavior of the labour market. The ILO document of 2018 and the World Development Report 2019 of the World Bank have been helpful in crystallizing the contemporary discussions on these issues. There have also been a burgeoning literature on globalization – free trade and free capital mobility- and its impacts on the growth and welfare of nations. It is argued that effects of globalisation on economic growth are asymmetrical across nations , and the speeds of adjustments also vary between countries. In what follows, we shall attempt a review of the analytical issues relating the effects on employment that the process of globalization and technological advancement have brought about in the contemporary world economy.

An important caveat must be made at this stage. In real calendar time, the process of technological advancement and the process of global economic integration that globalization seeks to capture, are taking place simultaneously and not separately, such that the their effects on employment, nature of work and/or share of labour in value added cannot be shown to be separate , and causality tests cannot be run to decide on the exact nature of association between these processes. While the empirical cross country studies are replete with such exercises , at the analytical level, such effects cannot be determined. Conjectures, therefore, follow, and alternative competing hypotheses are offered in the literature. There is no denying the fact that if technical change is of labour saving variety, job losses gradually take place, and in economies with labour shortage , yet endowed with skilled manpower, such technological change over time would improve productivity – of both labour and capital- and foster growth in manners predicted by neoclassical theories off growth and technical change. But in countries with labour abundance with large stock of already unemployed workforce, such technological progress would tend to augment job losses , particularly among the semi-skilled workers , pushing them to informal and unorganized sectors thereby sharpening income inequality and social tensions. In a structurally differentiated economy, the impact of increased digitization and robotics would affect the conditions and nature of work , and accelerate unemployment, particularly among the manufacturing and service sectors. Jobless growth , may be at the high productivity sectors , would also threaten gender inequality and augmentation of injustice, to put it mildly. It is important, therefore to look at the new labour processes that new waves of technological advancement in a globalised world would result in the coming years.

II. Globalisation and Labour Market Behaviour

Globalisation is a multi-faceted phenomenon, and each facet may have different effects on employment, varying by country, time, industry, policies and the like. Its effects on growth of output, employment and poverty across the nations and within a nation across different segments of population have been different and asymmetrical, and development analysts and policy discussions have been drawn to the discussion of these issues. The term globalisation means different things to different people. For some people, globalisation as a social and economic process, uniquely combines efficiency with a human face, as it lifts the growth profile of the economies through greater integration among themselves so as to reap the dynamic externalities and complementarities in production, demand, and technological advancements, and at the same time augments invests in human capital formation and designs mechanisms for redistribution of wealth and income to alleviate poverty and deprivations. They consider it to be the only mechanism to break the tyranny of bureaucratic control, and ineffective management of the commanding heights of the economy in the name of planning for social justice. The antagonists of globalisation , however, point to the numerous cases of failures of IMF-World Bank sponsored structural adjustment policies, where short-run stabilization programmes have resulted in long-run deceleration of economic growth, galloping of the rate inflation in these economies, and job losses with implications for worsening of income distribution. Nonetheless, it is important to recognize "globalisation" as an economic process through which national economies tend to get integrated through freer movements of goods and factors(mainly capital) across political boundaries. This is achieved through a policy reform by which historically entrenched tariffs and non-tariff barriers to free international trade are gradually removed and simplified and incentive structure of investment is tilted to attract foreign investment- both portfolio and direct. Wide ranging reforms in commodity, capital and labour markets along with trade policy reforms towards greater openness are undertaken by national governments to align their economies to the process of globalisation .

At the outset, it is important to recognize that the effects of globalisation and market integration on different parts of the world are likely to be uneven and asymmetrical, given the inequality in endowments, opportunities, and market penetration. The political economy of globalisation experiment with its full-scale ramifications differs from country to country, although there are doses of compulsions determined exogenously. In other words, the logic of small open economies working domestically under perfect competition is sought to be introduced into the domains of developing nations, who for historical reasons, suffer from structural rigidities of various kinds that tend to distort the functioning of markets in these economies. The inevitable effects of such opening up in these economies without prior corrections or safeguards have been manifested in different forms—loss of employment opportunities, reduction in government revenues with the resultant constraint on its expenditure plans, worsening of domestic income distribution, and above all, people's distrust with such policies that are imposed on them. The latter reaction is also reflected in political and social unrests, and the dwindling area of governance by the state.

Maintaining adequate rates of economic growth requires sustainable improvements in three areas: (1) expanding investment in productive capacity, (2) raising labour productivity (that is, the amount of output produced for a given quantity of labour), and (3) securing adequate demand. The expansion of productive capacity through new investments generally raise labour demand, since increased production requires additional labour as well as capital. In addition, productivity improvements lay the groundwork for sustained improvements in living standards and wages. Higher productivity fuels growth by increasing the potential output from a given pool of resources. However, higher rates of productivity may work against employment creation when less labour is needed to produce a given level of output. Similarly, new investments will not increase demand for labour if such investments simply add to excess capacity. To avoid these pitfalls, employment- intensive growth requires that demand for domestically-produced goods and services is matched with productivity improvements and investments in productive capacity. Achieving these objectives depends critically on the prevailing economic policy environment.

But who have benefited from such growth acceleration? Has accelerated growth in a globalised world necessarily brought in expansion of employment and drop in poverty for the masses of world population ? Or has it led to contraction of employment opportunities in developing countries and accentuated the incidence and severity of poverty and associated deprivations? The distribution of gains from growth between developed and developing countries, and within a poor developing country, between the ever growing affluent class and the pauperized and marginalized and even unemployed labour force , suffering from abject poverty, unemployment and deprivations of various types , are found to uneven and asymmetrical, leading us to question the wisdom of unqualified gains from globalization induced free trade and free capital mobility across all countries. In fact, evidence suggests that during the process of economic openness , many developing countries have experienced higher growth rate in their per capita GDP, but the effect on employment has not been uniformly positive—in aggregate terms , the employment elasticities of output for most of the developing countries show signs of decline over the period . As a matter of fact, the effect of openness on employment expansion has also not been uniform across developing nations- for some, it was positively related to export orientation, while for others, it was found to be related to import orientation.

When employment expands with economic production, the benefits of growth are widely shared, and thus improving the quality and quantity of employment opportunities directly links economic growth to poverty reduction. A development strategy that more fully employs a country's human resources and raises the returns to labour becomes a powerful tool for reducing poverty. Evidence from around the world suggests that the greater the employment focus, the more effective economic growth becomes in fighting poverty The precise path to poverty reduction may differ from country to country, but most developing countries that have dramatically reduced their poverty levels have done so by improving employment opportunities. Numerous examples exist – Indonesia, Vietnam, Chile, Bangladesh and South Korea. Economic growth alone cannot be counted on to generate significant improvements in employment and poverty reduction . The *type* of growth matters as much as the *level* of growth. Countries around the world have experienced periods of "jobless growth" in which output expands, but formal sector employment has stagnated or has declined. Informal employment frequently has grown more rapidly than formal employment, both during economic downturns and during periods of relatively rapid growth Such "informalization" represents deterioration, on average, of the quality of remunerative work. The establishment of an employment-centred development path for poverty reductionrequires the realization of three interrelated components: (a) **A Growth Component** – sustaining adequate economic growth;(b) **An Employment Component** - insuring that growth creates new employment opportunities and improves existing ones; and © **A Poverty Component** - linking vulnerable or marginalized individuals and households to employment opportunities. The connections between these three elements are not straight-forward. Economic growth alone is necessary, but not sufficient to achieve the ultimate objective of poverty reduction. Growth must be associated with improvements in employment opportunities if the efficiency with which growth reduces poverty is to be increased. Moreover, the generation of new employment is not enough to guarantee a decline in poverty. Policies must be designed so that the poor can take advantage of new opportunities.

The concern for employment expansion is crucial for developing economies as they inhere social insecurity and poverty, and providing employment acts as a cushion against the onslaught of exclusion and informalisation driven by market forces. Inefficient outcomes in production are weeded out by forces of competition and market penetration. As a result weak and inefficient producers are forced to leave the market and resulting the unemployed poor and vulnerable. Integration with the world economy unleashes the process of market driven development, creating imbalances in the labour market and segments workers in terms of skill and efficiency. This results in greater unemployment of unskilled labourers as these sectors tend to contract by the operation of scale efficiency and capital inflows signaled by high return on capital. Growth overall tends to accelerate but the shifts in the composition of growth towards more skill and capital intensive process of production lowers the relative wages and employment of unskilled workers, accentuating their poverty and deprivations. Trade unions, confined only in the organized sector , are unable to resist the deterioration of living conditions of the unorganized sector's labour force. .The second impact of globalisation induced productivity enhancing growth in the modern organized (manufacturing as well as services) is the greater inequality of domestic income distribution, which promotes the aggregate savings through compression of aggregate consumption spending and thus narrows the size of home market in the short run, thereby acting as a drag on industrial growth and employment of skilled labourers also. Such contractionary tendencies in the short run are countered by technological breakthroughs and expansion of investment opportunities to cater to the expanding global economy in the longer run, thus enabling these economies to make a transition from short run stagnation to higher growth trajectory in the longer run, but the process is not uniform across all the countries facing economic liberalization. In many landlocked poverty stricken economies with large stock of unskilled labour force, the growth path of globalisation induced industrialization exhibit oscillatory movements with increasing unemployment, and it is not prudent to rely exclusively to market-based outcomes to alleviate poverty and reduce the vulnerability of the unskilled labour force during the process of development of such poor nations in a regime of globalisation.

According to Deepak Nayyar (2015), starting 1980, world economic growth has slowed down and unemployment levels have been higher, while employment creation has been slower, as compared with the preceding three decades. He argues that such jobless growth is the outcome of policies that have stressed more openness in trade, investment and finance, has dampened output growth through a worsening of income distribution. Orthodox macroeconomic policies aimed at maintaining price stability and balanced budgets , have aggravated the problem of jobless growth, particularly in developing countries .Reduction of income and wealth inequality and creation of more effective demand would be required to address such problem, he argued.

Globalisation may impact on employment through a number of ways.First, it may reduce the number of jobs available in the economy , and thus enhance the unemployment rate at the macro-level. The important channel through which this happens is through deceleration demand through international transmission of business cycles, and it is important to note that such an impact on the decrease of demand for jobs can be different at the micro-economic level (establishment, enterprise, economic activity) and at the macro-economic level (total economy), as well as in the short or the long term. Secondly, the structure of jobs may be affected, i.e., jobs linked to certain economic activities may tend to disappear whereas jobs linked to other, maybe new activities, are created due to changing competitive advantages and patterns of specialization. This effect may also be due to technological progress that accompanies the process of globalization, and through the channels of trade and openness such effects are transmitted from one country to another. However, it is difficult to measure statistically this effect on structure of employment and to decompose it between the twin sources, e.g., globalization and technological progress. Further, the composition of jobs , i.e. the mix of skilled and unskilled jobs in the economy, is also likely to be affected by forces of globalization. For example, in developing countries, low-skilled workers have been most affected by stagnating revenues and / or increasing unemployment due to competition from developing countries' workers and also as a result of technological progress. Job earnings may also be affected through this process, and earnings gap between the best and the least qualified workers are likely to widen as was evidenced in both developed and developing nations.All these have impact on the nature of jobs , working conditions, and in the face of growing unemployment, particularly in labour surplus economies , challenges to social protection tend to rise. The gradual transition to robotization and digitized economic processes in both developed and developing countries in recent years are pointers to such challenges. Changing patterns of specialisation induced by globalisation or technological progress, such as a more service- oriented economy, also have effects on employment conditions that are definitely anti-labour , but difficult to measure exactly.

Since 1980, the ILO has developed a comprehensive set of statistical indicators of labour markets encompassing 20 key indicators ranging from labour force participation rate to poverty, working poverty and income distribution.While some of these indicators are useful for generating a detailed analysis of the labour market situation in a particular country, nonetheless they cannot capture the distinct nature of impact in the labour market due to forces of globalization, technological, demographic or socio-cultural changes that are occurring simultaneously. What is missing in such indicators , however, is a set of indicators that links the two areas with the aim of describing and quantifying their relationships (impact indicators), because the effects of globalisation and employment are multidimensional and dynamic. One may use job content of trade method to quantify the impact of one dimension of economic globalisation (international trade) on three dimensions of employment (number, structure and composition of jobs) by measuring the job content of both exports and imports. The net effect of international trade on employment is given by:

$L_t = \sum_j (L_{jt}/Q_{jt})T_{jt}$, where, L_t: number of jobs in full-time equivalent created or destroyed at time t in total economy;L_{jt}: number of jobs in full-time equivalent in industry j at time t;Q_{jt}: gross production in industry j at time t; T_{jt}: net exports (exports minus substituted imports) in industry j at time t. The method can be further refined to measure the types of jobs (for example, skilled / unskilled) that are created or destroyed by international trade. Alternately, one can use econometric methods , like regression analyses (logistic, linear, etc.) requiring a set of variables (dependent variables / explanatory variables) available for a sufficient number of observations (for example countries, regions, economic activities). The better harmonised the variables are between the different observations, the better the analysis. For all their limitations (incompleteness of economic theory and ensuing specification problems, non-experimental nature of economic data, risk of spurious correlations), econometric models are indeed powerful tools because they can disentangle the effects of economic globalisation on employment from other effects, which is of critical importance. However, results of such exercises in the existing literature are far from complete and cannot often capture full scale dynamic effects of globalisation.

III. New Technological Progress and Conditions of Work

Classical economists like Ricardo and Marx viewed technological progress as the labour-savings route through which the long term tendency of the falling rate of profit in a growing capitalist economy could be averted and postponed. Productivity and growth enhancing labour saving technological progress therefore results in contraction of jobs and change in the nature of work , not only in advanced capitalist economies , but also in labour surplus emerging and developing economies.The basic motivation for initiating research and development for favour of technological improvements therefore lies in saving the wage cost of labour, with resultant implications - both supply as well as demand side effects- for further growth . In the 19th century, Karl Marx worried that "machinery does not just act as a superior competitor to the worker, always on the point of making him superfluous. It is the most powerful weapon for suppressing strikes."[1] John Maynard Keynes[2] also warned in 1930 of widespread unemployment arising from technology and its development .Yet technological progress and innovations have continued unabated fostering growth in the world economy and in the present century , they have entered into new phases in the form of increased digitization, robotisation in the production processes , threatening the future of work, job security and increased unemployment with concomitant increasing pressure on social protection measures. It may be noted that whether one takes a Classical or a Neoclassical view on technical progress and economic growth, the fact remains that technological progress and innovations , require huge investments in research and development, which through scale economies and what is called learning by doing, tend to accelerate the future growth potentials of an economy. There are important complementarities between capital accumulation and productivity growth, and "it is important to foster research organizations and favourable industrial relations to make technological change more responsive to investment, and to foster financial organizations, and keep aggregate demand buoyant to make investment respond to new technological opportunities." (Dutt,2014).The net effect on employment depends on the nature of technical progress unleashed- capital saving or labour saving as the case may be- and the conditions of work that such scenario unveils.

Impressive and significant changes have been undergoing in the world economy regarding the nature and conditions of work. Steady and yet diverse rates of economic growth had been experienced across the world during post world war period with concomitant positive job creation, albeit slightly below the rate of population growth, increased labour market participation of female workers, improvements in occupational health and safety, progress in fundamental principles and rights at work, increased incidence of formal wage-setting mechanisms, and expansion of the domains of social protection -—all took place during this period. Yet, unemployment levels remain high as the global labour force continues to grow, and the global economy experienced periodic downturns. Therefore, concern about economic growth and human progress is growing as inequality, insecurity and exclusion – which imperil lives and livelihoods and pose existential threats to social organization and democratic societies – have become more widespread. And poor quality employment remains a key concern-- in 2016, emerging and developing countries were home to a total of 783 million working poor (i.e. living on less than US$3.10 per day, purchasing power parity), representing almost 30 per cent of all workers in these countries; - in developing countries , working poverty remains particularly acute, as it affects 69 per cent of the employed population in these economies. There have been diversification of forms of employment in different parts of the globe- most of the developing and emerging economies have experienced high incidences of informality in the job market, underemployment and working poverty. Even in developed countries, the ILO(2017) pins the working poverty rate – defined in the developed country context as the share of those with a per capita income below 60 per cent of the national median household income – is also significant, standing at 15 per cent in 2016, equivalent to over 70 million workers. Vulnerable employment often overlaps with informality, especially in emerging and developing countries. In fact, informality is widespread in both developing and emerging countries, where it reaches more than 90 per cent and 67 per cent of total employment, respectively. Widening inequality is also becoming a major feature of today's world of work, as the distribution between capital and labour and between individuals has shifted in many countries. Technological changes, along with globalisation and demographic shifts are considered to be the major drivers of the world of work, yet they are equally associated with labour market change, and conditions of work.

Although it is generally recognised that technological change is a major driver of growth and development, yet new technological innovations underpinning the Fourth Industrial Revolution, such as Big Data, 3-D printing, artificial intelligence and robotics, to name a few, are having a transformative impact on the nature work. Ever since 2010,for example, the number of operational industrial robots has increased by 9 per cent on average per year, reaching some 1.6 million units at the end of 2015. The deployment of robots is highly concentrated in the manufacturing sector (80 per cent) and within developed countries (80 per cent). Robot density – measured as the number of industrial robots per 1,000 people employed in the sector – ranges from 14 in developed countries to 2 in emerging ones.[ILO,2017]. While such new unprecedented waves of technological change are likely to result in short-term job destruction followed by the creation of new and better forms of jobs, it will definitely impact the nature and conditions of work. The real challenge at the policy level is need to manage the unequal distribution of these anticipated gains in productivity and potential disproportional impacts by gender, sector and skill level. They will also need to assess the implications in terms of job quantity and job quality. In short, the impact of technology on the world of work will depend on how gains are distributed, given the widening income inequality among countries and regions, and whether the transition creates decent and quality work.

Technological change and digitalization are creating new forms of invisible work, such as “virtual labour” or “digital labour”, engaging individuals in the gig economy or crowd sourcing activities, including, for example, as micro-taskers or virtual assistants and performing a variety of tasks that underlie social media activities. These workers are “invisible” in the sense that their work has no dedicated location and their employment relationship is often not recognized within the ambit of formal economic structures.. The extent to which virtual labour will come to represent a significant portion of the global labour force remains fuzzy at present . Further, whether these forms of work will ultimately fall within the ambit of the employment relationship, become new types of informality or fail to fall within existing regulatory frameworks also remains uncertain at this stage. Studies on robotization show that the risk of job loss is high for routine and manual jobs, including potentially in some service industries. In the absence of adequate opportunities to acquire new relevant skills, many of those who are at risk of job loss may be forced to take lower skilled and lower paying jobs, putting further downward pressure on pay in the low-wage sector. This could also give rise to precarious forms of employment increasing alongside long-term unemployment , and widening of wage gap.

In this context, it is worth noting the differences in access to technology, both within and across countries, e.g. variations by income grouping, between rural and urban areas, by gender, by age groups and even between sectors. For example, the digital economy generates substantial gains in productivity and profits from larger, global markets, but so far the technological dividends generated in the digital sectors have not spilled over to the rest of the economy, and thus the risk of deepening some of the prevailing inequalities, notably between capital and labour, exist. Together with the broader macroeconomic context, these changes raise concerns about how productivity gains from new forms of technology, such as robotization and artificial intelligence, will be shared. In short, the real challenge of technological change is therefore how to support firms in this transition and facilitate workers moving (both spatially and in terms of competencies) from old to new jobs and how to share productivity gains equitably.

Report of the ILO (2017) , entitled *ASEAN in transformation: How technology is changing jobs and enterprises* has found that there are considerable impacts of advanced technologies, such as additive manufacturing, robotics and the Internet of Things (IoT), are considerable on workplaces in the sectors of automotive and auto parts ; electrical and electronics ; textiles, clothing and footwear ; business process outsourcing ; and retail. Based on two ASEAN-wide surveys of more than 4,000 enterprises and 2,700 students, and qualitative interviews with more than 330 stakeholders in ASEAN and beyond, this study finds increasing use of robotics automation in the manufacturing activities in the ASEAN _countries such as Cambodia and Viet Nam. The report warns that while mass scale job displacement is not imminent, the technology to replace mainly lower skilled jobs in ASEAN will increasingly be adopted as its cost declines and innovations become accessible to even small-sized enterprises. The report estimates that about 56 per cent of all salaried employment in Cambodia, Indonesia, the Philippines, Thailand and Viet Nam, is at high risk of displacement due to technology in the next couple of decades. The real challenge facing policymakers, enterprises, and workers is to manage the transformative changes in labour markets, particularly in developing systems for skills and training that can prepare the future workforce with the new technical and core skills to meet the coming changes. Increasing investments in human capital and improvements in working conditions and strengthening the coverage of social protection to meet the challenges faced by the low skilled workers in the phases of increasing robotisation and digitization in these economies.This has also been the recommendation of the WDR 2019 on Changes in the Nature Of work.

Alternative estimates about the impact of new waves of technological progress have been forthcoming. The European Commission's Knowledge for Policy Briefs(2018) argues that some 45%-60% of all workers in Europe could see themselves replaced by automation before 2030 , and there might be a net loss of over 5 million jobs in 15 major developed and emerging economies by 2020. Some research suggests that "chat robots" and computers could replace almost 250,000 public sector jobs over the next 15 years, in UK alone. While there are less new jobs created directly by technological progress, one additional technology job creates around five new, complementary jobs in the local non-tradable sector. There will be requirements of new forms of jobs , like cyber security personnel etc in countries like India by 2021.Discussions of the wider labour force yield a similar diversity of predictions. Earlier this year, the *MIT Technology Review* assembled 18 reports on the effects of automation on labour that predicted everything from a gain of nearly 1 billion jobs globally by 2030 to a loss of 2 billion. The reports focused on automation technologies that are likely to emerge in the coming decades. (An artificial general intelligence capable of putting its mind to any number of tasks could change the whole concept of work, but it remains in the realm of science fiction for now.).The extreme variability of forecasts might reflect the complexity of the question — but some economists say it shows that the wrong question is being asked. The next few decades, they argue, will not see a fight against automation, in which jobs are either lost or saved. Instead, it will be about how workforces adapt to the new technology. Job titles will change, new ones will be created, and new policy will be needed to help the less-fortunate survive and enable the more-fortunate to spearhead change. The robots are coming, not to take our jobs, but to change them.

There is no doubt that technological change of automation, artificial intelligence and digitisation would alter the demand for skills—since 2001, the share of employment in occupations intensive in non-routine cognitive and socio-behavioral skills had gone up from 19 to 23 percent in emerging economies and from 33 to 41 percent in advanced economies. Actually, the pace of innovation would determine the extent to which the new sectors or tasks would evolve to counterbalance the decline of old sectors and routine jobs as technology costs decline, and reduction in labour costs in emerging economies would determine whether firms choose to automate production or move elsewhere. However, large firms, particularly firms in the digital economy, also pose risks, which the existing regulatory framework may often fail to mitigate.It may be noted that digital technologies allow firms to scale up or down quickly, blurring the boundaries of firms , and new digital platform firms are evolving from local start-ups to global behemoths with very few tangible assets or employees, and the virtual nature of productive assets constrains government's ability to raise revenues. Three types of skills have become increasingly relevant in the labour markets - advanced cognitive skills such as complex problem-solving, socio-behavioral skills such as teamwork, and skill combinations that are predictive of adaptability such as reasoning and self-efficacy. Building these skills requires strong human capital foundations and lifelong learning, and huge continuous investments are required by the governments across the globe cope with such skill requirements.

Technological shifts also bring out changes in the nature of work through a number of ways. In the first place, technological shifts blur the boundaries of firms through the rise in platform marketplaces- the Platform companies often generate value by creating a network effect that connects customers, producers, and providers, while facilitating interactions in a multisided model.Secondly, the idea of robots replacing workers is striking a nerve- the share of industrial employment has been declining between 1991 and 2017 in developed countries and the fear that the squeeze is going to affect a downturn/contraction in this indicator in other set of countries as well, mainly due to the globalisation, has been growing . Third, digital technology is reshaping the skills needed for work.In both developed as well as developing countries,while the demand for less advanced skills has been declining, , the demand for advanced cognitive skills, sociobehavioral skills, and skill combinations associated with greater adaptability is rising. Fourth, since a large number of workers remain in low-productivity jobs, often in the informal sector in many developing countries, addressing informality and the absence of social protection for workers has become the most pressing concern for emerging economies, and technological shifts have only added to these concerns . Social insurance is virtually nonexistent in low-income countries, and even in upper-middle-income countries it reaches only 28 percent of the poorest people. Finally, technology, in particular social media, affects the *perception* of rising inequality in many countries. This feeling gets heightened as increased exposure through social media and other digital communications to different, often divergent lifestyles and opportunities, take place , and when there is inequality of opportunity or a mismatch between available jobs and skills, frustration can lead to migration or societal fragmentation. The refugee crises in Europe, the war-pushed migrants from the Syrian Arab Republic, and the Arab Spring are notable manifestations of this perception.

The WDR,2019 has set three major tasks for governments to cope with the onslaught of automation, digitisation and artificial intelligence .These are : (a) large scale investment in human capital, particularly early childhood education, to develop high-order cognitive and socio-behavioral skills in addition to foundational skills; (b) Enhancement of social protection with a solid guaranteed social minimum and strengthened social insurance, complemented by reforms in labor market rules in some emerging economies ; (c) Creation of fiscal space for public financing of human capital development and social protection. The basic rationale of this three-pronged policy package has been to train and retrain labourers whose jobs have been displaced by the onslaught of technological advancement or may be, their skills have not remained consistent with robots and similar machines. The second case belongs to category of labour obsolescence, while the first one is pure job loss or destruction. The report (WDR, 2019) calls countries to take up on an urgent basis investment programmes in human capital- especially in health and education- so as to harness the benefits of technology and to blunt its worst disruptions. It may be noted at this stage that emphasis on government investment on human capital –education and health from the early childhood days is indeed a noble one and even if there is no threat of technological unemployment in future or at present due to such technological progress of the automation variety, such government expenditure on education and health is always welcome in the interest of improving human development and social progress in the longer run. Secondly, even if country governments across the globe succeed in training up their manpower with full scale exposure to handling the modern latest technology , the result would be forthcoming only in the *long run*, and in between, problems of mismatch and obsolescence of labour would continue to occur.Therefore , the first policy suggestion of the World Bank (2019) does not seem to stand on logical scrutiny.

The report also urges governments to expand the bases of social protection , particularly in developing countries, where unskilled workers are already working in the informal sector(around 2 billion people across the globe) unprotected by stable wage employment, social safety nets, or the benefits of education. 80 % of the working people in developing countries receive no social assistance, and 6 in 10 work informally without insurance. To elaborate, "*Social protection can be strengthened by expanding overall coverage that prioritizes the neediest people in society...Enhanced social assistance and insurance systems would reduce the burden of risk management on labour regulation. As people become better protected through such systems, labour regulation could, where appropriate, be made more balanced to facilitate movement between jobs."* [*WDR, 2019*]$_3$ .Similar concerns can be made with regard to suggestions 2 &3 listed above. Enhanced social protection to labourers across the globe is definitely an ideal scenario and there is nothing wrong if governments do undertake such programmes on a large scale in different countries.But the real problem stems from what the economists call as the budget constraints of the governments. The fiscal burden of extensive social protection coverage is likely to be prohibitively high and therefore in for all practical purposes, this suggestion shall not implemented by any government. To argue that governments should restructure its fiscal space to ensure larger inflow of revenues, seems better said than done, and thus the third suggestion of the World Bank in this context seems a far cry at this moment. The report itself [WDR, 2019] recognises the challenges likely to be faced by governments in implementing this suggestion. To quote , 'How will governments raise the additional resources needed to invest in human capital and advance social inclusion?.. Most of the required fiscal resources are likely to come from improved capacity in tax administration and policy changes, particularly to value added taxes and through expan- sion of the tax base... Closing tax exemptions and converging toward a uniform tax rate in value added tax could raise further revenues. Taxes on immovable property could raise an additional 3 percent of GDP in middle-income countries and 1 percent in poor countries'[WDR 2019].However, the increasingly digital nature of business would only create more opportunities for tax avoidance than earlier, and generation of revenues from new kinds of assets, such as user data, would make it increasingly unclear to diagnose the sources of value creation for tax purposes.

IV. An Introspection

Change in the nature of work is perhaps the most important unintended consequence of the new waves of technical progress. It not only changes the work environment and job specifications, but also endangers the vast pool of semi-skilled or unskilled workers, who lose their jobs, because they cannot cope with the new technology and the coverage of social protection across the world are far from adequate. Yet the underlying presump- tion of the discourse on automation and artificial intelligence has been that this form of technological breakthroughs would continue unabated. In fact, the basic motivation for undertaking research and development for the enlargement of such type of technological frontier , has to economise the labour costs in the process of capitalist accumulation. The Classical and neo-classical economists have connoted with this perception with impli- cations for income distribution. In the world economy with rising and accelerating in- equality of income and wealth, such a shock will definitely have adverse macroeconomic consequences. Secondly, one of the consequences of this form of new innovation has been the internationalization of production such that beyond national boundaries, labourers of different skills and of different country of origin can contrib- ute to production, and there is no need for physical migration of labourers. The production process is separated beyond national boundaries and there is offshoring of various types.The effect is similar to the operation of multina- tional enterprises, and the extent of integration with the global supply chains through digitization process determines the net effect on employment in dif- ferent countries of the world. What the globalization process does is to fa- cilitate movements of virtual goods between countries and thereby distribute globally the effects of new waves of technological innovation. In that sense globalization aids the dissemination of the fruits of technical progress, albeit at different rates and speeds. It is therefore important to look into closely the dynamics of technology trade along with the new waves of technical progress experienced in the world economy.

Finally,a word of isolating the effects of technological progress such as robotisation, digitization and artificial intelligence and of globalization per se (in the sense of free movements of goods and services and free mobility of capital between different countries of the globe. Although some progress has been noted in this direction (vide ILO 2018), the results obtained so far are not robust and definite, mainly because of limitations of data availability. But one thing is clear, Mere reforms in the fiscal space of the country governments shall not suffice to address the issue of changes in the nature of work due brought about by the technological shocks experienced in the world economy.

Notes

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Report Of The 40th Annual National Conference of Bangiya Arthaniti Parishad

Held During February 29 , and March 1, 2020

Organised By

Department Of Economics, Bethune College, Kolkata.

DAY 1 :February 29, 2020:

Inaugural Session (prepared by Dr. Mou Roy)

The 40 th Annual Conference of Bengal Economic Association (henceforth BEA) was held on 29th February and 1st March 2020 at Bethune College, Kolkata. The theme of the Conference was 'Analysing the Growth Trajectory of Indian Economy: Productivity, Efficiency, Employability & Equity'. The Conference President was Professor Dilip.M. Nachane, Emeritus Professor of Economics and former Director, Indira Gandhi Institute of Development Research, Mumbai.

The Inaugural Session began with Mangalacharan performed by Bethune College Students' Choir. The dignitaries were invited to take chairs on the dais and were felicitated. This was followed by lighting of the ceremonial lamp. One minute silence was observed in condolence of **Dr Biswajit Guha**, former Associate Professor of Economics, Netaji Nagar Day College and former Vice President, and also President (Actg) of Bangiya Arthaniti Parishad.

Prof. Krishna Roy, Principal, Bethune College offered warm welcome to the distinguished guests, educationists and academicians from all over the country for gracing the occasion. India, following a high growth trajectory in the last decade, is currently facing serious challenges of sustaining steady growth and combating poverty. She hoped that the deliberations of this academic meet will enlighten us in this matter. She referred to the rich historical legacy of the college in general and the Department of Economics in particular, which was established more than 100 years ago, in 1917.

Prof. Biswajit Chatterjee, President BEA accorded a warm welcome to the dignitaries on the dais and scholars and students of Economics participating in the Conference. He pointed out that BEA, unlike many other regional organizations in the country, has a tradition of not confining the choice of Conference Presidents within the state of West Bengal. In the past also , eminent economists like Prof P.R.Brahmananda,Prof.V.R.Panchamukhi and Prof Alaknanda Patel graced the annual conferences of the association as

Conference Presidents. We also cherish the memories of distinguished frontline economists of country like Dr I.G.Patel, Dr Manmohan Singh , Dr C.H.Hanumantha Rao, Prof T.S Papola, Dr.C.Rangarajan , Prof B.B.Bhattacharya and Dr S.R.Hashim addressing the seminars and conferences organised by Bangiya Arthaniti Parishad over the years. This year, BEA is honoured to have Prof. D.M. Nachane, Emeritus Professor of Economics and former Director, Indira Gandhi Institute of Development Research, Mumbai as Conference President. It is a proud privilege to have eminent academicians in this 40th Annual Conference as speakers of Memorial lectures and resource persons of Technical Sessions. He explained the reasons of the twin names Bangiya Arthaniti Parishad (BAP) and Bengal Economic Association (BEA) of the same organization. While speaking about BEA, he said that sailing through 40 years is not an easy task. The Parishad faced several constraints and challenges. But in its endeavour to enthuse scholars in research and to promote excellence through academic discussions, seminars and publications, the Parishad received guidance and contributions of eminent economists. Distinguished teachers and academicians like S.N. Sen, Prof. Dhiresh Bhattacharya, Prof. Alak Ghosh have steered the association by their leadership as President, Secretaries and other office bearers. The Parishad, apart from providing a forum for academic discussions is also publishing journal Arthabeekshan and edited books regularly. Thus it is quite difficult to address the question how value of economics science has progressed due to the activities of the Parishad - a question recently faced by the Parishad from a functionary of a funding organization. Prof. Chatterjee thanked Prof Krishna Roy, Principal, Bethune College for her efforts in making this programme a success. He also thanked Prof Mamata Ray, Chairperson, Higher Education Council, Government of West Bengal for the proposal to host the 40 th Conference in Bethune College given by the Department of Economics of the college a year ago, when she was the Principal of the college . The faculty members and students of the department of Economics of Bethune College have worked tirelessly to make the 40th Conference a grand success. Bangiya Arthaniti Parishad expressed special thanks to them, Professor Chatterjee mentioned. Prof Chatterjee recapitulated the contribution of Dr Biswajit Guha, former Vice President/President of BEA who passed away within stroke of the conference, in steering the Parishad, particularly during its hard days. Professor Chatterjee thanked the funding agencies for their grants, and welcomed all the participants from different parts of India.

The Conference Volume,-Volume of Abstracts and Volume 28, No 4 edition of Arthabeekshan were released by Prof Chatterjee.

Prof Sugata Marjit, Distinguished Professor, IIFT Kolkata and former Vice-Chancellor, University of Calcutta, remembered many occasions to be with BEA. Commenting that it is more difficult to sustain an organization compared to building it, as initial enthusiasm and energy generally fade overtime, he said that BEA is an exception and it is receiving attention of serious scholars and organizers. He recapitulated his fond memories of Prof. Biswajit Chatterjee as his teacher in Presidency College, Calcutta. Prof Marjit said that Statistics and Econometrics as research tools have emerged in Economics since long time. Now, Big Data Analysis, Artificial Intelligence and Machine Learning are entering our discipline. We are now confronting information more than we can handle and researchers are inclining to these new methodologies. But we must not forget that Economics is always about why and how things are happening in our society. In his insightful lecture, Prof Marjit suggested these things to be kept in mind by the young researchers in their pursuit of economic analysis.

Sm. Gairika Banerjee, a student of Economics Honours of Bethune College played a musical piece, a dhoon in Raag Pilu in Mohanbeena to welcome all, which was highly appreciated by all.

Prof. D.M. Nachane, Emeritus Professor of Economics and former Director, Indira Gandhi Institute of Development Research, Mumbai began his Presidential address referring to the immense contribution of Bengal in natural and social sciences. His lecture titled “The New Consensus Macroeconomics: A Lakatosian Perspective” examines the evolution of the New Consensus Macroeconomics (henceforth NCM) from the perspective of Lakatos. The NCM which established itself in the 1980s represented an “uneasy truce” between the then dominant New Classical School and the nascent Neo-Keynesian view. The NCM and especially its twin pillars – the Rational Expectations Hypothesis and the Efficient Market Hypothesis supplied the intellectual basis for the wave of financial liberalization that rose in the 1980s throughout the world. He identified four key theoretical propositions of the NCM namely

1. Micro-foundations, Representative agent and Rational Expectations
2. Ergodic Uncertainty
3. Complete and Efficient Markets
4. NAIRU hypothesis

Prof. Nachane in his paper attempts at an appraisal of NCM theory using Lakatosian methodology which encompasses three features, namely

(i) a hard core of central theses that are deemed irrefutable.

(ii) a number of auxillary hypotheses that support the methodology but which are falsifiable (in the Popperian sense). These are termed the protective belt or periphery.

(iii) a methodology that is deemed admissible or scientific.

Adopting the Lakatosian scheme, he lists the following three propsitions as central hypotheses of the NCM:

(i) Micro-foundations and Reductionism with representative optimizing agents

(ii) Rational Expectations

(iii) Ergodic Uncertainty

Other hypotheses are not fundamental but implicit.

Opinions differ as to the hypotheses constituting the periphery. A fairly acceptable list for the periphery would include

(i) Classical dichotomy/Natural rate hypothesis/Long-run verticality of the Phillips curve

(ii) Transversality condition

(iii) Irrelevance of income distribution for explaining business fluctuations

(iv) Irrelevance of institutional features in explaining business cycles.

Apart from the core and periphery, the Lakatosian framework posits a scientific methodology for falsifying the peripheral hypotheses. The purported scientific methodology adopted in the NCM in recent years has been the Dynamic Stochasic General Equilibrium (DSGE) model.

The NCM came under attack after global financial crisis of 2008. The criticisms were confined to policy issues and the scientific methodology. Core assumptions were challenged but there was no criticism of the peripheral hypotheses.

Prof Nachane in his paper attempts at a critique of the core hypotheses of the NCM theory, where bulk of his criticism is on Micro-foundations followed by Rational Expectations. Attack on Ergodic or Algoric Uncertainty is touched upon. Thus his paper tried to present a convincing case for a rebuttal of the hard core of the NCM in a Lakatosian framework suggesting search for new paradigms for macroeconomics. He concluded suggesting that economists from their professional ethics should warn policy makers of any policy that will be harmful to the society. This has become more essential particularly after the global financial crisis of 2008.

Prof. Anup Sinha, former Professor, IIM, Kolkata, Chief Mentor, Heritage Business School and Chairman, Bandhan Bank expressed his honour in delivering S.N. Sen Memorial Lecture this year.Professor S.N.Sen, who steered Calcutta University in very difficult times , was the Vice Chancellor of the University of Calcutta during his student days, said Professor Sinha. Justifying choosing unemployment as his topic, he stated that unemployment has been a big problem during the last century which we have not been able to solve yet. Moreover in the days of technological revolution, unemployment has become more an issue with falling share of labour in national income and alarming rise in economic inequality. Prof. Sinha in his lecture titled "Unemployment and Technological Change: Are we heading towards a brave new world?" shares his own concerns about how old structural unemployment has begun to coexist with new types of technological unemployment in India and its implication for the future functional distribution of income. However till today, there exists some degrees of complementarities between capital , and high and moderately skilled workers. Automation in the 1990s along with loss of jobs of some categories, have created many new and high paying jobs as well. India was able to identify a new area of comparative advantage in ITES. However the current developments in robotics, artificial intelligence and machine learning make the prospects of new employment opportunities extremely limited. Many standard jobs known currently will disappear in a decade or two and there is very little understanding of what new jobs might be in demand, except that they will require intelligence and skills of an exceptionally high order. Human beings are known to possess two broad sets of skills – manual and cognitive. So far all historical changes in technology have taken place around the replacement of manual tasks by machines. Hence cognitive tasks have become more remunerative and sought after. This replacement of humans by machines has grown more and more sophisticated with new waves of technology climbing up the skill ladder and this time the replacement is being created for primarily cognitive tasks – learning by doing, problem solving etc. If cognitive tasks go away to machines, then humans are incapable of doing any other kinds of tasks where machines have not taken over. There is the distinct possibility that unemployment will have a new dimension apart from its rising number – the unemployed will be unemployable despite some amount of education and skill. Prof. Sinha ended cautioning that the social and political responses in labour-surplus country like India to such rising unemployment and unemployability, job insecurity and fightening inequality could be very much disturbing turning out to be violent and vicious.

The inaugural session ended with vote of thanks by Dr Ruma Bhattacharyya, Secretary BEA and Dr Satarupa Bandyopadhyay, Local Organising Secretary, Bethune College. They expressed their gratitude to the sponsorers , namely ICSSR, Higher Education Department, Government of West Bengal, State Bank of India and Bank of Baroda and thanked the authority, students and staff of Bethune College and also Professor B .Chatterjee,President of BEA and also all the delegates for extending their support to organize the conference.

Post Lunch Session (prepared by Dr.* Purba Chattopadhyay *)

A.K Dasgupta Memorial Lecture

The post lunch Session of the day one of the 40th Annual Conference of Bengal Economic Association, held at Bethune College Kolkata, was the 14th Professor A K Dasgupta Memorial lecture,which was delivered by**Professor Pronab Sen**, the Country Director of International Growth Centre of India, and former Principal Economic Advisor, Planning Commission of India, and Chief Statistician of India. The session was chaired by **Professor Alaknanda Patel**, formerly Professor of Centre for Policy Research, Baroda. Professor Patel's reminiscence of her father, Professor A.K. Dasgupta, in whose memory the lecture was being arranged for the 14^{th} time, contained many instances of him being a successful teacher and mentor to numerous reflective and successful students like Professor Parimal Roy, Professor Nazrul Haque and Professor Samar Ranjan Sen. With great pride and pleasure, then she introduced the 2^{nd} generation torch-bearer of Professor A.K. Dasgupta and the illustrious son of Professor Samar Ranjan Sen, Professor Pronab Sen, and welcomed him on behalf of the Bengal Economic Association to deliver the Professor A K Dasgupta memorial lecture.

Professor Sen titled his lecture "*Farmer's Distress: are we missing a macroeconomic factor*?"In the lecture, he essentially tried to look into the farmer's distress in the recent years, from a macroeconomic perspective. The thought-provoking lecture brought to the fore the longitudinal movement of agricultural prices that show a steady rise in the period from 2004 to 2014, and a steady decline from 2014 to present. According to him, the structural explanations of demand and supply fail to explain food inflation in India, and hence it had to be looked into from a monetary perspective. He then carefully examined and portrayed the monetary duality of the Indian economy in form of credit and cash sub-economies, and the flow of money from the reserves of the bank to the cash economy. He explained that in such economy the production in the cash economy when adversely affected by an external shock would lead to rise in the prices of agricultural commodities. The monetary mechanism of inflation in agricultural sector was then explained through the minimum support price for cereals. In light of the above analysis, Professor Sen stressed on the necessity to integrate the monetary policies with efficient fiscal mechanisms for ensuring the success of the monetary policies.

The lecture ended with the President of BEA, **Professor Biswajit Chatterjee** extending his vote of thanks to the chair and the speaker.

Panel Discussion on Banking

(Report by Dr Sujatra Bhattacharya)

40th Annual National Conference of Bangiya Arthaniti Parishad (Bengal Economic Association) was organised by Department of Economics, Bethune College on 29.02.20 and 01.03.20 with the collaboration of Bangiya Arthaniti Parishad. The theme of the conference was " Analysing the growth trajectory of Indian Economy: Productivity, Efficiency, Employability and Equity". The conference comprised various invited lectures, technical sessions and panel discussion.

One of the sessions includes a panel discussion on '50 years of bank nationalisation – way forward'. The speakers in this discussion were invited from both the academic fields and banking sector. The speakers participated in this panel discussion were Prof Partha Ray, IIM, Kolkata. Ms Nandini Banerjee, SBI and Mr Siddhartha Sanyal, Bandhan Bank.

Initially the President of Bangiya Arthaniti Parishad, Prof Biswajit Chatterjee introduced the speakers and emphasised the need for this panel discussion. He said that, in the last fifty years, after the bank nationalisation the economy had experienced huge changes in the financial sector. There was introduction of private and foreign banks. However the major concern according to him was the accumulation of Non-performing Assets (NPA). Thus he reminded the audience about the major challenges in front of the banking sector in India.

Prof Partha Ray in his erudite speech described the poor banking condition in India in the pre-nationalisation era. The money market was ill-developed. The depositors often suffered from losses and hence they had lost their faith in investing in the financial market. The plan of bank nationalisation was adopted due to different political, social and other causes. Eminent economist I.G. Patel requested the government for nationalisation of selected banks. As a result fourteen commercial banks were nationalised. This led to extension of banking network in the rural areas. Gross domestic savings as a percentage of GDP increased. There was a slight increase in CRR and SLR. However India adopted new economic policy in 1991. The liberalisation policy called for a reform in the financial sector. Hence the Government appointed Narasimham committee to suggest the measures to develop the financial market. The committee recommended deregulation of the financial market and encouragement to the private sector banks. Foreign banks were allowed to operate in the financial market. The capital position of the banks improved a lot. The amount of NPAs has shown a declining trend upto 2008. Unfortunately the global financial crisis of 2008 led to a sharp rise in the NPAs after 2008. The asset price came down. There was euphoria about PPP and accordingly banks wanted to fund them. However there was a mismatch between asset and liability which was coupled with the problem of repayment. In addition to this, the economists had identified the role of failure of governance and corruption in this era. All these were responsible for the rising trend of NPAs after 2008. In recent times as per the opinion of Prof Ray, the power sectors are getting relief and there is a possibility of huge capital infusion. Prof Ray pointed out that we are now in the juncture of mergers of banks, but unsure about the basic motive of it.

Ms Nandini Banerjee of SBI was the second discussant of the session. Initially she has admitted all the points raised by Prof Partha Ray. She commented that before the nationalisation of the commercial banks in July 22, 1969 LICI and SBI were nationalised. The fourteen banks which were nationalised , were expected to prosper after the nationalisation as this step taken by the government actually increased the faith of the general public on banking system of the nation. However she has also explained the political background of the decision of nationalisation by the government in 1969. The speaker said all of these banks were acted as the lead banks which led to the increased credit flow to the agricultural sector. The underprivileged sections of society started to get loans. The industries got assurance of the availability of the loans. This trend continued even after the introduction of the private banks. In 2008 the amount of NPAs started to grow due to the corruption, scams, laxity of RBI etc. The speaker discussed about the stiff competition faced by the nationalised banks from the foreign banks. She was optimistic about the future scenario as capital infusion was still continuing in this five trillion economy.

The last discussant of the session was Mr Siddhartha Sanyal, Chief Economist , Bandhan Bank. He has explained the performance of the banking sector in the last fifty years in a different way. He emphasised the importance of the banking sector and its role in the entire service scenario of India. He also focused on the intensive use of technology in the banking sector. The banking sector in recent times was characterised by the coexistence of the first generation banks, private banks and the foreign banks. Mr Sanyal gave credit to the public sector banks who had created the path and earned faith of the public. Now, as per the opinion of the speaker, the private banks were working hard for the financial inclusion. They were playing a significant role as financial intermediaries and also involved in microfinance. He was also concerned about the debate regarding the increase in the number of private sector banks or the public sector banks. However he put emphasis on the complementarities between these public and private sector banks. They jointly can bring significant and positive changes to the sector. He expressed his doubt over the consequences of the amalgamation of the banks. He stated that although this would lead to increase in the size of the banks but since there was a considerable amount of cultural differences among these banks, this amalgamation might not work in an efficient manner. Still he believed these huge banks, after amalgamation, could play a crucial role in the global market

To sum up, Prof Biswajit Chatterjee , who moderated the panel discussion, focused on the opportunities and challenges in front of the Indian banking sector. He briefly summarised the views of the discussants of the session and invited questions from the house. The queries and questions were answered by the discussants. The session was absorbing and well attended.

Sm. Giribala Karmakar Memorial Lecture

(Report by Dr.Sudip Jana)

The BEA had organized "4thGiribala Karmakar Memorial Lecture" during its 40th Annual Conference organised by Department of Economics, Bethune College, Kolkata, West Bengal. Dr.Mrinal Dasgupta chaired the session. Dr.Asim Kumar Karmakar was introducer for this session. The lecture was delivered by Prof. Madhusudan Datta of Kalyani University.

The Chairman of this special lecture, in his welcome address, highlighted about Smt. Gribala Karmakar and his association with her. Prof. Dasgupta also stated that the subject chosen for the lecture by the renowned economist was of great contemporary relevance.

Thanking the Chairperson, Prof. Datta started the lecture. The topic of the lecture was "Trade and Transport services in Indian Economic Growth."Prof. Datta mainly focused on dynamics of the most prominent intermediate service – distributive trade related transport, clubbed together as TT- service. Demand for transport or financial services made by final user are quite significant, but that too comes largely from demand for final goods shown separately in national accounts.

He described the various points related to the topics as follows:

1) Growth of sectoral GVA at 2004-05 prices;
2) GDP- shares of major sectors and sub-sectors at current price and percentages;
3) Trends in output growth;
4) Gross output of selected sectors and GDP at factor cost at 1993-94 prices;
5) Index of Industrial production;
6) GDP shares- all services and 'Trade and Transport' services;
7) Derived demand for distributive services;
8) A model of industrialisation with induced TT services;

9) Flow of input and output with single stage manufacturing,and

10)The trade ratio, sectoral interrelations and the demand structure.

The session was concluded with the remarks of the session Chair. Thanking the speaker for his in-depth discussion, Prof. Mrinal Dasgupta briefly summarized the lecture delivered by Prof. Madhusudan Datta and emphasized the need to dwell upon the areas as mentioned by Prof. Datta in his lecture.

Second Day :01.03.2020

First Plenary session devoted to Trade ,Industry and Labour(Report prepared by Dr Tapasree Banerjee)

The second day(01.03 2020) of the 40th Conference started with the First Plenary session devoted to Trade ,Industry and Labour. The report of ythis session was prepared by Dr Tapasree Banerjee of Prabhu Jagatbandhu College, Andul,Howrah.

The first plenary session held on 01.03 2020 of 40th Annual Conference of Bangiya Arthaniti Parishad organized by Bethune college.**Dr Maitri Ghosh** of the department of economics, Bethune College, introduced the chairperson and the Speaker after the felicitation by the students. The session was chaired by Professor Saikat Sinha Roy, Jadavpur University and the keynote speaker was Prof.C.Veeramani, IGIDR, Mumbai.

Prof. Veeramani analysed the trends and patterns of labour share(share of income accrued to labour) in India. His paper is entitled “Declining Labour Share in Indian Economy: Role of Structural Transformation”. The coauthor of this paper is Anwesha Basu, IGIDR.

This paper has provided a detailed analysis covering both informal and formal sectors within agriculture, manufacturing and services. Using KLEMS data , the authors have noted a decline in aggregate economy-wide labour share from 54% in 1980 to 49% in 2016.

Shift share decomposition exercise reveals that both within and between the sectoral factors played a role in determining the trends in the aggregated labour share.Analysis at the disaggregated level reveals that it is mainly driven by two sectors real estate and construction , none of which is susceptible to the effects of technological change or trade. The between sector component, on the otherhand, is driven by the pattern of country”s structural transformation , which has favoured the highly skilled services sector while bypassing the manufacturing sector.

The regression results show that although the within sector component in explaining the trends in the aggregate wage share cannot be ignored, it is unlikely that an increase in the within component of the labour share could have been witnessed.Their findings suggest that an overall introspection of the economic conditions and government policies faced by these sectors and subsectors might shed more light on this issue.

Plenary II(Report by Dr. Purba Roy Chaudhuri,Bhawanipur Education Society College)

Presentation of Dr. S.R.Sen Memorial Best Book Award

Keynote Speech on Inequality & Justice by Prof. Satya Ranjan Chakravarty, Professor, ISI, Kolkata,Chaired by Prof Achin Chakraborty, Director,IDSK.

In this session, **Prof. Satya Ranjan Chakravarty** was first awarded the S.R.Sen Memorial Award for his book on "Polarisation". He was emotional after being conferred the award, remembering his teacher Prof. Nikhilesh Bhattacharya. According to Prof. Chakravarty, this award was in a way an indirect way of honouring Prof. Nikhilesh Bhattacharya. His lecture started with paper titled "Effect of Income Tax Progressivity on the Middle Class: An Analytical Study". This paper analytically relates progressivity of income tax with two fundamentally different metrics, the well-known Lorenz ordering and the bipolarization ordering put forth by the speaker himself. It has been observed that inequality in India in income, consumption, expenditure and wealth dimensions of measurement have demonstrated an increasing trend since the launch of economic reforms. High inequality means concentration of high incomes in the hands of few and is likely to compress the size of the middle class. For instance, the share of the middle 40% income group in the national income of India reduced from 40% in 2000 to 30% during 2013-14. A large and rich middle class of a society contributes to the well-being of a society in many ways, particularly, in terms of higher education level and better health status, so that the middle class emerges as a key provider of skilled labour. A rich middle class makes a considerable contribution to the country's tax revenue and infrastructure. In contrast, a society possessing a small middle class and many persons away from the middle income group may give rise to a constrained relationship between the individuals belonging to the subgroups on the two sides of the middle income group which at long last may lead to social unrest and civil war.A small and weak middle class generates weak systems and hence non-continual growth. High incomes stemming from high economic growth provide higher chances for better systems and state capacity which successively may weaken chances for conflict. Since the 1990s the size of the middle class has been closely related to the notion of bipolarization by social scientists. An income distribution that is more spread out from the middle, so that there are fewer individuals in the middle position than in the two extreme positions, is known as more bipolarized. This is as well referred to as 'two-peaks' or 'two-components' hypothesis. In a highly interesting recent contribution by Carbonell-Nicolau and Llavador (2020) a normative justification for tax progressivity that relies on principles of equity and depolarization was provided. The objective of this paper is to analyze the Carbonell-Nicolau-Llavador result in greater details.

The indices of polarization in this paper are of relative type; they remain unaltered under an equal proportionate change in all incomes. This contrasts with the notion of absolute polarization invariance, which requires polarization indices to stay unchanged when equal absolute changes in all incomes take place(see Chakravarty, Majumder and Roy, .2007) Each of these two invariance notions reflects a particular value judgment and debatable to some extent. For instance, while a proportionate increase in all incomes widens their absolute gaps, an absolute reduction in all incomes increases ratios among them. Often policy makers do not prefer such extreme positions. Bossert and Pfingsten (1990) suggested a compromise notion of invariance, intermediate inequality invariance, that contains relative and absolute concepts as polar cases.(For its merits and demits, alternative and variations, see Chakravarty, 2015.)

Given incentive preservation, while for relative inequality reduction increasingness of average tax liability is necessary and sufficient; for absolute inequality reduction the analogous condition is minimal progressivity, increasingness of tax liability with income. It may be worthwhile to note that incentive preservation does not imply minimal progressivity.

Plenary Session III, Day 2 of the 40th Annual Conference of Bangiya Arthaniti Parishad

***(Report by Yojna Kharge, Kalimpong College)* on Agriculture and Rural Development**

The third plenary session of the second day of the conference started with the introduction of the key-note speaker, **Prof. Shankar Kumar Bhowmick**, Professor, Centre for Economic Studies & Policy, Central university of South Bihar, **by Dr Suranjana Dasgupta** of Bethune College. He was felicitated by the students of Bethune College. The session was chaired by **Dr. Ruma Bhattacharjee**, Principal, Bijoy Krishna Girls'College,Howrah. The chairperson invited Prof. S.K. Bhowmick for his presentation.

Prof Bhowmick started off by pointing out availability of various research issues in Indian agriculture even after 70 years of her independence. His data revealed the declining share of agriculture both in terms of Gross value Added as well as workforce. Nevertheless, the important role of agriculture in economic development cannot be ignored. His findings showed that though there was fall in agricultural growth during the first phase of post liberalization, the later phase (after 2004-05) saw an improvement in the performance. This revival proved inevitable role of agriculture in poverty reduction and employment creation.

He identified the major constraints faced by Indian agriculture like decline in area, stagnant cropping pattern, technology fatigue, falling growth rate of inputs, slow pace of agricultural diversification, falling investment, credit constraint, marginalization of holdings, adverse impact of climate change, lack of insurance, deterioration of terms of trade and fall in the rate of profitability.

In the context of government's vision and mission of 'doubling farmers' income by 2022-23', Prof Bhowmick suggested that government should focus at 'doubling farming household's income rather than doubling farmers' income, through their involvement in various non-farm activities.

He concluded the presentation with some suggestive measures for agricultural development such as enhancing production through yield increase, improving resource use efficiency, raising productivity of irrigation, enhancing public investment, increasing cropping intensity, special focusing on dry-land, risk management, development of extension institution, provision of price support, capacity building among farmers, focus on Eastern India, complementing the role of women in agriculture, etc.

The chairperson expressed her gratitude to Prof. Bhowmick for the enlightening lecture. She pointed out the problem being faced by researchers in terms of the availability of data in the field of agricultural research. However, she thanked the speaker for opening new vistas for researchers with the various constraints of agricultural development put forth by him.

Day 2: 01March 2020, Plenary-4, 12.30 PM-2.00 PM on social sector

(Report by : Purba Chattopadhyay)

The fourth Plenary Session on the second day of the 40th Annual Conference of Bengal Economic Association, held at Bethune College Kolkata was devoted to social sector had two keynote addresses. After the felicitation of the speakers and the chairperson, **Dr Satarupa Bandyopadhyay** of Bethune College , introduced and welcomed them.

Professor Debdas Banerjee, Former VC at Central University of Bihar, delivered the first lecture on "*Inequality in Education: Aspects of Opportunities and Processes in India*". Prof. Banerjee examined two critical concerns in contemporary educational development in India, in form of growing interpersonal as well as inter regional disparities, and second, the dwindling average quality of learning outcomes. He based his analysis on Sen's Capability Approach. He proposed that years of schooling is a function of individual and institutional investment. Attempting to operationalize institutional investment on the basis of factual data, he showed that in contrast to the educationally developed systems of the world, the pre-primary and the primary education receives only 27% of total expenditure on education in India. It was also showed that government expenditure in tertiary education has been about 6.2% higher than that in the primary education. Connecting it to the various aspects of inequality, Professor Banerjee established the differential learning outcome of the students coming from the rural and urban background, as well as between the students of tribal origin in contrast tostudents of upper-caste. He ended his lecture analytical by drawing suggestions from the experience of other educationally developed as well as high HDI countries.

The second key note address was presented by **Professor Barun Kanjilal**, formerly Professor in Health Economics, Indian Institute of Health Management Research, Jaipur on "*Decoding Complexities in Health Care Market: The New Horizons of Research in Health Economics*". Professor Kanjilal in his brief yet insightful lecture brought about the complexities of health care market in the developing countries, especially in India, and focused on the rapid changes in the approach to health care in the post-liberalization period. He argued that health care market in developing countries operate in absence of proper social protection. Lack of protection and appropriate regulatory bodies lead to severe market failures and a distorted market, which adversely affects all, however most severely the vulnerable groups in the society. With seamless analytical skills, Professor-Kanjilalexplored the in-patient and out-patient care facility in the hospitals, and brought out the problems and opportunities of the emerging health care market corroborating his earlier arguments. He concluded his thought provoking lecture with various suggestions of future research in realm of health care's changing dynamics in India.

This Plenary Session was chaired by **Professor Rabindranath Bhattacharya**, Retired Professor, Department of Economics, Kalyani University, who summed up both the lectures in a succinct way and thanked both the speakers. Vote of thanks was offered by Dr. Satarupa Bandyopadhyay, Local Organizing Secretary of the Conference.

Post Lunch sessions-Day 2

Technical Session A: Agriculture, Day 2

(Report by Yojna Kharge, Kalimpong College)

The technical session on Agriculture began after the sumptuous lunch in the RUSA seminar hall of Bethune College. The session was chaired by Dr. Ruma Banerjee, Principal, Bijoy Krishna Girls' College,Howrah. The session formally started with the felicitation of the chairperson and the Rapporteur.

The chairperson invited the first presenter, Dr Budhen Saika, Faculty of Economics, Morigoan College, Guwahati University, Assam on stage. His paper titled "Challenges of Tribal economy for Sustainable Development: A case study of Tiwa Tribe of Assam" highlighted the challenges faced by the Tiwa tribe and the effects of the development policies of the government that have compelled the tribal people to adopt the commercially competitive livelihood instead of self-sufficient primitive agriculture. The chairperson thanked Dr. Saika and suggested that he identify the factors of development that can be used to assess the status of the tribal people.

She went ahead and invited the second speaker of the day Dr. Munish Alagh, Associate Professor, SPIESR, Ahmedabad for his presentation. Dr. Alagh in his paper 'Institutional Economic Perspectives on Agricultural Development in Gujarat', discussed about the institutional requirements for generating marketed surplus, uncertainty of the future of Gujarat farmers, encouragement of individual initiatives by both public and private mentors for fast development and synergizing of farmers for success of horticulture and contract farming. The chairperson acknowledged the contribution by the speaker and suggested to clearly define the points put forth by him.

The next presentation was made by Priyonkon Chatterjee, Faculty of Economics, PGT, Mahesh Sri Ramkrishna Ashram Vidyalaya, on 'MGNREGP: A Key to Development- A block Level case study of Hoogly District'. He gave a review of the current status of the implementation of NREGA in the Serampore-Uttarpara block of Hoogly District, West Bengal. His observation showed that the performance of the programme was satisfactory in the study area and hence if effectively implemented, NREGA would become a more effective instrument for reducing poverty and employment generation in the rural economy of West Bengal. Prof Bhowmick suggested the use of a control group for comparison which would have made effectiveness more clear.

The chairperson called upon the next presenter, Dr. Uttam Kumar Halder, Assistant Professor of Economics & HOD, Dept of Economics, Serampore Girls' College, University of Calcutta. His paper entitled 'Role of CPRs in Sustaining Agricilural Practices in Bankura District, West Bengal' concentrated on an intensive study about the Commom Pool Resources(CPRs) as complementary assets for the sustainability of cultivation to rural poor people who are engaged in susbsistence paddy cultivation with their marginal and tiny land holdings in drought prone Bankura District. His findings revealed that the accessibility of CPRs reduced the cost of cultivation in several ways. Thus CPRs are a kind of shock absorber. Alongside it was also seen to enhance productivity thus making cultivation remunerative. The chairperson thanked him for providing his study findings and requested to know about the existence of the phenomenon of reverting tenancy which was found to be absent by the researcher.

The next speaker was a research scholar from Dept of Economics & Politics, Visva Bharati, Ms Lekharani Gohain who presented her paper on 'Determinants of India's Agricultural Trade: An Analysis using Panel ADRL Approach.' She attempted to examine the effect of selected trade indicators on agricultural trade of India. Her analysis showed that relative prices of agricultural products influenced agri-exports, policies should be taken to inflate the level of productivity focusing mainly on exportable agri-products and imports of the current period were determined by the tariff rates of previous period. The chairperson appreciated the speaker and wished to know whether the researcher had used the same factors for the explanation of both exports and imports. The speaker confirmed the use of same factors.

This was followed by the presentation made by Nazneen Ara Haque and Jahidul Haque, Research Scholars of Dept of Economics, Guwahati Universit, Assam on "Profitability of Traditional Farming and Allied Activities: A case study of Kamrup Rural District, Assam.' Their study revealed that the returns from Allied activities were much higher than from cultivation of traditional crops. Hence, there existed a tendency for farmers to shift towards allied activities. Their presentation was acknowledged by the chairperson with a suggestion to include a diversity index.

The next presentation of the session was made on 'Determinants of Non-Farm income as sustainable livelihood strategy in West Bengal' by Dr. Rupam Mukherjee, Assistant Professor, Dept of Economics, Kabi Sukanta Mahavidyalaya, Burdwan University. His paper tried to understand the nature and composition of Rural Non-Farm Income(RNI) activity in the study area and investigate how different socio-economic factors affect the participation in RNI in the study area. The findings of his paper brought to light the likelihood of participation in non-farm activities increased with level of education and size of household and decreased with size of landholding and access to credit. The chairperson appreciated Dr. Mukherjee and fully agreed with the phenomenon pointed out in the paper.

The chairperson invited Ms Rabiya Khatoon to read out the abstract of the paper due to the absence of the author, Dr Sutapa Ray, Associate Professor, Dept of Philosophy, Prabhu Jagatbandhu College, Andul-Mouri, Howarh. The paper was entitled 'Tribes in West Bengal: A Blinkered Vision of Development.'

The last presenter in the session Yojna Kharga, Assistant Professor, Dept of Economics, Kalimpong College, University of North Bengal, West Bengal was invited on stage to present her paper on 'Organic Farming in Sikkim: Policy, Performance and Challenges.' Her paper threw light on the journey of Sikkim in becoming the first fully organic state of the country. Her findings brought to surface the various challenges faced by the farmers in the state and how the public and private institutions could help the farmers to overcome them. After the completion of the presentation the chairperson expressed her thanks along with some suggestions to improvise the paper.

The chairperson winded up the technical session by sincerely thanking everyone for their contribution and participation.

Technical Session B &C: Industry, Labour and Emerging markets-I&II

Chairpersons: **Professor Arpita Ghosh,** Jadavpur University **&**
Professor Santanu Ghosh, WBSES,Maulana Azad College,Kolkata.

Rapporteur: **Dr. Sanjay Bhattacharya,** C.I.E.M., sanjayecon@gmail.com

The gist of presentations and interactions of the Technical session : **Industry, Labour and Emerging Markets** in the two-day **40th Annual National Conference of Bangiya Arthaniti Parishad** (Bengal Economic Association) on **Analysing Growth Trajectory of Indian Economy: Productivity, Efficiency, Employability & Equity** in collaboration with **Department of Economics, Bethune College, Kolk**ata on **29.02.2020** and **01.03.2020**, are presented below.

This session has received an overwhelming response with over forty delegates participating and presentation of twelve papers.

- **Ms. Debjani Nandy**, research scholar of West Bengal State University presented a research paper entitled **"Regional Disparity in MSME Growth: An analysis from the perspective of financial penetration in West Bengal"** jointly authored by **Prof. Jyotish Prakash Basu** of West Bengal State University. In this paper effortsare made to investigate the role of financial penetration of West Bengal Finance Corporation (WBFC) and scheduled commercial banks for causing disparity in the growth of MSMEs across different regions in West Bengal. The study made an impression that the concentration of MSMEs are greater in those regions where loan disbursement is comparatively higher and with higher value of financial penetration index.

- **Mr. Sushovan Maiti**, ICSSR Doctoral fellow in the Department of Economics, Vidyasagar University presented a research paper entitled **"Analysis of Total Factor Productivity Growth of Indian Yarn Sector: A Non-parametric Method"** jointly authored by **Dr. Chandrima Chakraborty,** Asst. Professor, Vidyasagar University. The yarn spinning sector in India is 100% organised and globally competitive in terms of variety, process and production. In this paper efforts are made to measure total factor productivity growth and its components of Indian yarn sector using firm level data employing Data Envelope Method approach. The main thrust of this deliberation is to find out the TFP growth in Indian Yarn sector as well as examining the factors affecting TFPG over time.

- **Ms. Soma Pal**, ICSSR Doctoral fellow in the Department of Economics with Rural Development, Vidyasagar University presented a research paper entitled **"Determinants of Employment in Food and Beverage Industry in India: A study using State Level Data"** jointly authored by **Dr. Chandrima Chakraborty,** Asst. Professor, Vidyasagar University.In this paper efforts are made to find out the employment growth of Food and Beverage Industries in different major states of India and also to check for the existence of any structural break in the employment series. Alongside it tries to identify the determinants of the growth of worker, workers other than employee and employee other than worker.

- **Mr. Akash Dandapat**, Ph.D Scholar in the Department of Economics, Vidyasagar University presented a research paper entitled **"Employability and Productivity of Unorganised Manufacturing Enterprises in West Bengal"** jointly authored by **Dr. Pinaki Das,** Associate Professor, Vidyasagar University.In this paper efforts are made to explore the employability od productivity of Unorganised Manufacturing Enterprises of West Bengal Using NSSO Unit Level Data of 67^{th} and 73^{rd} rounds, which reveals that the employment of UMEs increased significantly in West Bengal during 2010-11 to 2015-16. Productivity found to be significantly positively influenced by male ownership, own account enterprises, expanding status of growth, Govt. assistance and capital intensity.

- **Mr. Shantanu Rajguru**, Industry Consultant, Speaker, Author & Former Director, Gem and Jewellery Export Council presented a research paper entitled **"International Price Making of Gold and its availability that impacts Jewellery Sector"**.The Gem and Jewellery sector is the home to an illustrious age-old heritage for its rich craftsmanship and plays an important role in the Indian Economy. In this paper it is opined that the rise in geopolitical tensions, sanctions and rise in energy prices together with current account deficits induces G.O.I. to employ restrictive trade practices with subsequent increase in tariff, which had impacted export performance of the jewellery industry in terms of Growth, Employment and sustainability of this sector.

- **Mr. Kalyan Das**, presented a research paper entitled **"India's Macroeconomic Growth and Its Determinants, 1950-2016: An Empirical Investigation"**.In this paper efforts are made to examine whether the growth trajectories, inflationary spirals and variations in sectoral savings-investment gaps over the years have been benefitted enormously from macro policies in terms of reduction in income inequality, poverty and structural changes in India.

These dynamic economic relationships are examined empirically using together unit root, Autoregressive Distributed Lag model cointegration and causality framework.

- **Ms. Kalpita Ray**, Part time Faculty in Sister Nivedita University presented a research paper entitled **"Firm Level Cost Efficiency of the Indian Computer Industry in the Retro of Tariff Rationalization"** jointly authored by **Prof. Byasdeb Dasgupta,** Kalyani University.In this paper efforts are made to study whether the Indian computer firms produces at cost efficient manner in the Information Technology Agreement impacted tariff regime. It is observed that Indian computer sector is cost efficient on the basis of the fact that the hardware sector generates less value due to its dependency on import.

- **Mr. Prasun Chatterjee**, Research student, Department of Business Administration, Burdwan University presented a research paper entitled **"Key Risk Indicators for Contributory Pension Benefit in India"** jointly authored by **Prof. Gautam Mitra,** Department of Business Administration, Burdwan University. In this paper efforts are made to investigate the key risk indicators for defined contribution pension benefit for India's organized working population and to measure or adjust the standard of living by multiplier effect to superannuation benefits and risk indicators. Further efforts are made to list out the types of risks and key indicators in this relation.

- **Mr.Parimal Ghosh,** Research Scholar, Burdwan University presented a research paper entitled **"Growth and Volatility amongst GDP, Consumption, Investment and Export in India"** jointly authored by **Dr. Maniklal Adhikary,** Professor, Burdwan University.In this paper efforts are made to explore the relationship between growth and its volatility, not only for GDP but also for its components like consumption, investment, government expenditure and exports. The paper also tries to examine how growth volatility of GDP affects its components, over time.

- **Mr. Neeloy Gupta**, Research Scholar, University of Kalyani and Asst. Professor, T.H.K. Jain College, presented a research paper entitled **"Migrant Construction Workers in Kolkata: A Study through Day Labour Markets using Field Survey Technique".**The study is based on primary data collected through discussions and interviews of migrant labourers at different construction sites, using open-ended and structured questionnaire and covering 11 specific labour clusters in the city. In this paper efforts are made to trace out the magnitude and sources of migrant labourers of different clusters of Kolkata and also to check the relationship between wage rates and other activities of migrant labour, in ceteris paribus, using equilibrium condition of labour market in short run.

- **Dr. Tushar Das**, visiting faculty, Rabindra Bharati University presented a research paper entitled **“Structural Transformation of Indian Economy under Liberalisation: Impact on Domestic Income and Employment”.**In this paper efforts are made to arrive at projection of Income and Employment, by substituting domestic input-output matrix with total matrix (domestic plus import). The paper draws conclusion that liberalized trade has promoted income and employment, rather to shrink it. Assuming zero-trade balance, alternative scenarios have been examined to separate out the impact of negative trade balance on income and employment in the liberalized trade situation in India.
- **Mr. Chandra Kanta Saha**, Department of Economics, Sister Nivedita Govt. General Degree for Girls, presented a research paper entitled **“Development induced displacement and its Implication on Sustainable Development in the light of Singur and Rajarhat in West Bengal”.**In this paper efforts are made to fathom out the impact of development induced displacement, in the perspective of sustainability of development and in the face of practical problems of land grabbing. The concerned issues of sustainable development approach for displacement, land accusation, the concerned laws, resettlement and rehabilitation, International law for human rights and the role of civil society, supplemented with the analysis of displacement in Singur and Rajarhat in West Bengal and its consequent trauma, resentment in two places and their implication on sustainable development are also examined.

The session ended with a note of thanks to the chair.

Technical Session on Inequality and Justice – sessions D & E(Report by Dr Mou Roy)

The session was chaired by Prof. Mamata Ray, Chairperson, Higher Education Department, Government of West Bengal and co-chaired by Dr. Mou Roy, Associate Professor, Lady Brabourne College. The Chairperson initiated the discussion referring to two kinds of inequality; one arising from labor-based income, and the other, from capital. She commented that these two components should be segregated for the purpose of studying as these components change differently with economic development.

Dr. Somashree Poddar (Roychowdhury), Associate Professor, Lady Brabourne College, in her paper “Foreign Direct Investment and Gender Inequality in the Indian Labor Market: Empirical Analysis” uses NSSO data to empirically measure and analyze the impact of inward FDI on economic emancipation of women. Economic emancipation has been measured by two variables, namely, women labor participation and gender-wage inequality. Through empirical analysis, the study compares separately on a point-to-point basis (1987-88 vs. 2011-12), the rate of change in (in%) a) gender wise participation rate, and b) gender-wage gap, for each selected major beneficiary industry of FDI vis-à-vis their respective sector (primary/secondary/tertiary). The general methodology adopted in this study has been to plot the rates of change of female employment participation and gender-wage gap for industries in which FDI flow has been high, before and after reforms, and comparing them with the aggregate sectoral values in order to identify a pattern. The results of the study suggest that FDI had a favourable impact on women labour participation on tertiary and secondary sectors of the Indian economy- evidence being stronger for the former. With respect to gender-based gap, the results are mixed. While tertiary sector appears to have benefitted, no definite conclusion can be drawn for the secondary sector. The paper concludes mentioning certain constraints on which the results of the study are contingent.

The joint paper by Priya Brata Dutta and Nirjhar Ghosh, Economics and Politics Department, Viswa-Bharati University titled "Skilled-Unskilled Wage Inequality, Unemployment and Input Trade: A Theoretical Analysis" focuses on the rising wage inequality evident more prominently post globalization. The paper develops a static three sector five factor competitive general equilibrium model of a small open economy; Sector 1 being the rural agricultural sector using informal, unskilled labour and land as inputs; Sector 2, the urban, manufacturing sector employing organized unskilled labour (getting unionized wages) and capital and Sector 3, the service sector using skilled labour and imported intermediate input. Capital is mobile between Sector 2 and Sector 3; and unskilled labour is mobile between Sector 1 and Sector 3 respectively. Factor prices in each of the three sectors are perfectly flexible except imported intermediate. The results show that an exogenous increase in capital stock or an increase in tariff of imported intermediate good improves skilled-unskilled wage inequality and lowers unemployment.

Dr Joysri Acharyya in her paper "Women Empowerment in India: Is it a Myth?" attempts to analyze the status of women in the context of different determinants of their empowerment. The different determinants of women empowerment in India chosen in her study are: i) employment, ii) access to resources, iii) control over own earning, iv) men's attitude regarding gender roles in household decisions, v) spousal violence. The study reveals that women in India, even today, enjoy lower status than men and hold much less power than men in spite of all efforts by Government of India and also many NGOs. The paper concludes that access to education, awareness for rights, support at the workplace and strict implementation of acts and policies can enable the women to have empowerment.

Shama Firdaush, Ph.D. Research Scholar, Vidyasagar University and Pinaki Das, Associate Professor, Vidyasagar University, in their joint paper titled “Are the women of India Empowered? A State Level Analysis” , attempt to analyze the status of empowerment of Muslim women across states in India and examine whether there exists any significant difference in the empowerment status of Hindu and Muslim women. Based on NFHS-III and IV rounds data, eight indicators were selected to judge their status. The paper reveals that the women are being empowered over time and there does not exist any significant difference in the status of Hindu and Muslim women. The states like Tamil Nadu, Kerala, Odisha and Karnataka are moving ahead in this regard, whereas, Haryana and Uttar Pradesh are lagging far behind.

Dr. Sudip Jana, Joint Secretary, Bengal Economic Association, in his paper titled “Mass Poverty, Social Injustice and India’s New Political Economy” aims to explore how countries that are poor rarely succeed in building a democratic form of government and even more rarely, in sustaining that form of democracy. The blend of extreme poverty, high rate of unemployment, inequality, social injustice and other growth-retarding parameters are extremely dangerous for the survival of democratic institutions. His paper analyzes how India is in the midst of challenges of the dilemma of economic growth versus social justice, eventually leading to jeopardizing the present situation.

The joint paper titled “Spatial Gender Pay-gap Disparity and its Determinants: A Subnational level Study in India” by Rhyme Mondal, M.Phil Reseach Scholar, Jadavpur University and Dr. Simontini Das, Jadavpur University investigates the existing gender pay-gap across Indian states over the time period 2005-06 to 2013-14. Panel data analysis shows that gender pay-gap varies widely across the states and Net State Domestic Product, crime against women, sex ratio, gap in literacy rates and Gender Parity Index have significant impact on the gender pay gap.

Shantanu Ghosh, Research Scholar, Vidyasagar University and Dr. Tarak Nath Sahu, Assistant Professor, Vidyasagar University in their joint paper titled “ Financial Inclusion-An Evidence of Inequality Across The Regions of India” explore the extent of financial inclusion in the different states and union territories of India for 2002-18. The study constructs an index using the methodology as suggested by CRISIL. Considering the inequality among the geographical regions, the study reveals a significant difference in mean index of financial inclusion scores where the southern part appears to be at the top throughout the study period. However, in terms of stability of achievement the southern part is found to be placed after the northern region. Presence of disparity in terms of mean IFI scores among the regions suggests that even within the country where achievement is expected to turn uniform certain economic and other macro factors stands dominant having significant influence on the achievement values.

The objective of the paper titled “Impact of Social Protection on Inequality in Backward Region of West Bengal” by Jagabandhu Mandal, Research Scholar, Vidyasagar University, Prof. Debasish Mondal, Professor, Vidyasagar University and Dr. Pinaki Das, Associate Professor, Vidyasagar University is to examine the impact of social protection programmes on inequality in the backward region of West Bengal. The study shows that the benefits coming from social protection programmes have reduced the income inequality in both absolute and relative sense. In addition, the income of relatively more-poor households has increased at a greater extent than income of relatively less-poor households. The absolute inequality in the presence of social protection is larger than absolute inequality in the absence of social protection. The study suggests that the social protection programmes can be used as an important tool for reducing inequality; at least relative inequality, in the backward region of West Bengal.

Technical session F: Social Sectors: Education and Health(Report by Basudha Mukhopadhyay)

Chairperson: Professor Archana Sharma, Gauhati University

The Session started at 3:20 p.m. Initially the PPTs of all the presenters were collected. The chairperson has been felicitated by the students of the college. The Chairperson then asked the presenters to start with the presentations.

The first presentation was given by Shashi Bhusan Mishra, Assistant Professor, Department of Economics, Aliah University on **Adolescent School Drop Out in India: What Does the NSS 74st Round Data Reveal?** He started the presentation by pointing out two problems of Adolescent Education. One is Students not enrolled in schools and the other is adolescent dropout from schools. The second problem leads to wastages not just at the individual level but also at the social level as it does not provide productive return to the nation for the resources which are invested on the students. The paper aimed to address the demand side factor determining dropout in India. He pointed out that along with household and individual level factors, the gender of the student, religion of the household etc turned out to be significant factors affecting adolescent dropouts.

The second presentation was given by Dr. Mahananda Kanjilal, Associate Professor, Jogesh Chandra College on **74th Constitution Amendment Act, 1972**. She stressed on the importance of decentralization of urban local bodies. The power of the urban local bodies can be channeled to provide better civic amenities to the population through decentralization.

The third presentation was given by Deboleena Das, Research Scholar, Department of Economics and Politics, Viswa-Bharati University, Santiniketan on **Environmental Tax And Child Health**. She explained that environmental health is that branch of public health that is concerned with all aspects of natural and in-built environment that may affect the quality of health of any human being. The paper aimed to theoretically study the interdependence among environmental quality, pollution tax, parent's income, mother's autonomy and their impacts on child health. She concluded the presentation by deriving a relationship between pollution tax and child health.

The fourth presentation was given by Satyanarayan Kumbhakar, M.Phil Scholar, Vidyasagar University on **Status of Child Health & ICDS in West Bengal.** The paper attempted to analyze the performance of ICDS and its impact on the status of child health across the districts of West Bengal using NFHS 3rd and 4th round data. The study revealed that Children's nutritional status in West Bengal has improved from 2005-06 to 2015-16. The study also revealed that a higher percentage of literate women in the districts is likely to reduce the percentage of child undernutrition in West Bengal.

The fifth presentation was given by Piya Ghosh, Research Scholar, West Bengal State University, Barasat, Kolkata, West Bengal on **Consumer Expenditure on Healthcare Services: An Economic Analysis in India at the State Level**. The paper attempted to analyse the changing nature of both institutional and non-institutional healthcare expenditure separately. Both the types of healthcare expenses were judged from the point of catastrophic effect across 15 major states of India. The study used NSSO 50th, 61st and 66th Round Data on levels and patterns of household consumer expenditure in India.

The sixth presentation was given by Basudha Mukhopadhyay, Research Scholar, Jadavpur University & Assistant Professor, J.D. Birla Institute, West Bengal **on Minimum acceptable diet and Child Undernutrition in India**. The study attempted to examine the association between Minimum Acceptable diet and other socio-demographic factors on Child Undernutrition in India. The study used the nationally representative dataset from National Family Health Survey 3 and 4. It used multi-level logistic regression to examine the relationship between Minimum Acceptable diet and child Undernutrition parameters controlling for other covariates. The study concluded that WHO guidelines on Minimum Accepatble Diet needs to be followed to bring down the percentage of undernourished children in our country.

The following paper presenters were not present in the session:

1. Granthana Sen Gupta, Assistant Professor, Sunderban Hzi Desarat College, South 24 Parganas.

2. Dr. Mahua Patra, Assistant Profesor of Sociology, Maulana Azad College. & Dr. Satarupa Bandhopadhyay, Associate Professor in economics, Betune College.

3. Dr Debesh Bhowmik, Retired Principal and Associated with Indian Economic Association and The Indian Econometric Society, Life Member, Bengal economic Association, Economic Associatiob of Bihar.

The session concluded with thanks to the chair.

Technical session G: Banking and Finance *(Report by Dr. Asim Karmakar)*

The technical session, *50 Years of Bank Nationalization,* began at 3.30 P.M. and was chaired by Dr. Asim K. Karmakar of Netaji Subhas Open University (NSOU). He presented a joint paper first and also acted as a Rapporteur of this session.

The paper by Dr. Asim K. Karmakar of Netaji Subhas University and Professor Sebak K. Jana of Vidyasagar University on *The Banking Sector of the BRICS Economies: Main Facts and Challeges Way Forward.* Their arguments run thus: For several reasons, countries as Brazil, Russia, India, China, and South Africa (BRICS) with their robust macroeconomic fundamentals have come to prominence in building their sound banking systems with its merits and oddities that we are going to discuss here.

Since a sustainable and well-capitalized banking system capable of funding the economic growth is critical for an economy, because everyone needs a bank and also since banks play a crucial role in accelerating the process of economic growth and development, with the efficient functioning of the banking sector contributing to the national economic growth and higher living standards of the population, this paper, in the above backdrop, focuses on the banking sectors in BRICS economies. The paper analyzes the performance evaluation of banking sectors in the BRICS economies on select parameters such as capital adequacy, non-performing loans, return on assets (ROA) and the return on equity (ROE) for the period 2013 to 2016 particularly in case of Russia and India and in terms of number of branches per unit area, branches per population, automatic teller machines (ATMs) per unit of population, and the depth of banking penetration at the aggregate level using indicators like deposit-to-GDP and loan-to-GDP rates in all the BRICS economies. Paper also details the major challenges that the BRICS banks may face in coming times due to the volatile global financial environment. Data for this paper have been obtained from secondary sources only. A study of the banking systems, deposit insurance framework, performance evaluation of banks on select parameters, and challenges way forward in the banking sector of the BRICS economies is, therefore, both exciting and challenging.

Srabani Dey and Gautam Mitra in their paper *Performance Evaluation of Private Commercial Banks— A Non Parametric Approach* have constructed a performance frontier of Private Commercial Banks on the basis of data collected for the period from 2004-05—2017-18. For that purpose, they take into account variables like capital adequacy ratio, return on assets, NPA ratio, etc. Using Tobit Censored Regression , their research findings are that the efficiency score of Private Commercial Banks matters most and is highly influenced by its Capital Adequacy ratio compared to its other variables as Net NPA to net Advances ratio, Return on assets and Return on Equity.

Razdan Alam, Research Scholar , Dept. of Economics, Rabindra Bharati University presented her joint paper *Financial Inclusion in India: Towards Development or Disparity?* with Debolina Saha of the same University in a lucid manner. Her main argument is that though financial inclusion has taken place during 2010-2018 in India, there is a gulf of difference between rural areas and urban areas while assessing feasibility of financial inclusion. Their study reveals that in per capita terms, each and every for financial inclusion is less in rural areas as compared to urban areas and thereby disparity in a massive form continues. Their suggestion is that such disparities or inequalities are to be minimized by prudent policy initiatives.

The next joint paper *Reflections on the performance and Efficiency Score of Selected Microfinance Institutions (MFIs) in India: An Empirical Analysis* with Cma (Dr.) Sudarshan Maity, Deputy Director, The Institute of Cost Accountants of India, Kolkata was presented by Dr. Anusri Mallik, Assistant Prof., Narula Institute of Technology, Kolkata. In the backdrop of microfinance that has emerged as a viable alternative to reach the hitherto unreached for their social and economic empowerment through social and financial intermediaries, their paper investigates the performance and efficiency scores of selected (12) MFIs using DEA technique within the time frame 2018-19 using secondary data. Their finding is that 7 out of these 12 MFIs are considered efficient units and may be cited as genuine example to other institutes to improve their performance and efficiency.

The last joint paper entitled *50 Years of Bank Nationalization—Way Forward* was by Subhajyoti Majumdar, Rtd. Deputy Manager, Dena Bank and Shri Prabal Dasgupta, Associate Professor of Economics, A.J.C. Bose College, Kolkata. The paper was presented by the first author. The paper was comprehensive in its coverage. Their paper mainly discusses the major developments in the Indian banking system after nationalization of 14 major scheduled commercial banks, whose total deposits were merely above Rs. 50 crore at that time. From then on there have been tremendous progresses. In this context, they discuss Narasimham Committeee—I & II, NPAs of commercial Banks, Mission Indradhanush, the 4R's, Mergers and Amalgamation of Banks and the way forward for the banking sector..

Technical Session H: 50 years of Bank Nationalisation- Ii (Report by Smt. Sakhi Roy, and Dr. Gopal Chandra Mandal)

Technical Session H:	**50 years of Bank Nationalisation- II**
Session Chair:	**Dr. Subrata Kumar Ray, Principal,** *Prabhu Jagat Bandhu College, Howrah, West Bengal.*
Rapporteurs:	**Smt. Sakhi Roy, Assistant Professor,** *Amity University* **andDr. Gopal Chandra Mandal, Associate Professor,** *Prabhu Jagat Bandhu College, Howrah, West Bengal.*
Venue:	**Botany Department, Room no. 40.**

The **first** presentation of this session was by **Dr. Sudarshan Maity,** Deputy Director of the Institute of Cost Accountants of India. Their joint paper was titled **"Proliferation of Banking Facilities in North-eastern states- an Investigation of Financial Inclusion".**

The main driving force of an economy is country's banking and non-banking financial institutions. The stronger and widespread banking systems help to strengthen economy of a country. Although the financial sector has made commendable progress in recent years, there are concerns that the banks have not been able to include vast segment of population especially underprivileged sections into the field of basic banking services. Despite rapid economic development and modernization of world economy, gaps in financial access remain severe.

The study investigated proliferation of banking facilities of bank branches and access of financial services across all eight states in north-eastern region in India. The period of study is ten years from 2008-09 to 2017-18. The data were analysed by using descriptive statistics and compound annual growth rate is calculated for understanding the pattern of growth and disparity in banking services at the state level. In order to judge the disparity between states researchers have used ANOVA test with different parameters considered in the study.

According to the result of ANOVA, the study has found that there is a disparity on banking coverage across the states in north-eastern region. Further, due to existence of disparity of banking coverage, disparity of financial inclusion exists between these states.

They concluded that financial inclusion is required to uplift the poor and disadvantaged people by providing them the customized financial products and services. Proliferation of banking coverage is essential for achieving financial inclusion. A financially inclusive society is important to help people mobilize more resources to support economic growth and to create better opportunities for poverty reduction.

Dr. Gopal Chandra Mondal suggested that geographical considerations based on Settlement Region would make the study more interesting and suggestive. He also suggested that the real cause of the variations should be explored. Sakhi Roy highlighted that since Assam is much advanced than the other states of Northeast that could be source of variation. Hence, she suggested an analysis without Assam would help check for robustness of the findings. The Chair and the other participants discussed about the role of Nationalised Banks in bringing about Financial Inclusion.

The **second** paper presented in this session was titled "**Measuring Efficiencies of Pension Fund Managers in New Pension Scheme in India: An Application of Data Envelopment Analysis".** It was presented by **Prasun Chatterjee.**

The main objective of the study was to measure the financial efficiencies of Pension Fund managers in New Pension Scheme in India by using standard Data Envelopment Analysis (DEA) for the period 2017-18.

They used the DEA solver in MS-Excel with Charmes-Cooper- Rhodes (CCR) model based on the constant return to scale (CRS) model. All the eight Pension Fund Regulatory Development Authority (PFRDA) regulated pension fund managers' i.e. HDFC Pension Management Co. Limited, ICICI Prudential Pension Fund management Company Limited, Kotak Mahindra Pension Fund Limited, LIC Pension Fund Limited, Reliance Capital Pension Fund Limited, SBI Pension Funds Private Limited, UTI Retirement Solutions Limited and Birla Sun Life Pension Management Limited under New Pension Schemes (NPS) for both the Tier (I& II) in E, C & G schemes. It is covering 100% of the Indian Pension companies or Fund Managers in NPS. The input – output efficiencies measured under CRS and those who scored 100% in standard DEA model termed as efficient Fund manager.

They have considered 3 inputs and 5 outputs scenario where inputs represent cost/expense ratios, Portfolio turnover ratios and Asset Under Management (AUM) and outputs are absolute 1 year returns, 3 & 5 years returns, returns since inceptions and Net Asset Value (NAV) as on 31st March 2018.

The result was quite interesting to notice as efficiencies varying with scheme or portfolio of pension Funds. As well, Fund managers with the large AUM not established always as most efficient Fund managers in all the schemes in NPS in India.

A discussion on effectiveness of the use of DEA model was done by Dr. Sudarshan Maity.

The **third** paper titled **"Bank Nationalisation and Priority Sector Lending in Indian States"** was presented by **Dr. Subrata Kumar Ray,** Principal, Prabhu Jagatbandhu College, Andul-Mouri, Howrah, West Bengal and **Dr. Gopal Chandra Mandal,** Associate Professor in Economics, Prabhu Jagatbandhu College, Andul-Mouri,Howrah, West Bengal.

They focussed our attention to how the priority sectors, i.e., agriculture, micro and small enterprises, education, etc. are the key sectors for propelling economic growth and for ensuring overall economic development along with social justice through developm1'ent of large rural sector. In development paradigm, this sector always remains least attended. Prior to nationalisation of 14 major commercial banks by the Government of India, the banks mainly provided credit to large and medium scale industrial units in India. The priority sector was derived of credit from such banks. Private funds are not attracted in this sector because the source and the rate of return are not attractive and well-defined in some cases. However, these sectors require huge financial resources for proper development.

After independence, the government failed to initiate measures for social control over banks in 1967-1968 to secure a better adaptation of the banking system to the needs of economic planning. The sector first catches more attraction in the Reserve Bank's credit policy for the year 1967-1968. Nationalisation of commercial banks was done by passing an ordinance in 1969 for channelizing the flow of credit to the priority sector. Undoubtedly the banking sector has played an effective role as a hand maiden of government policy through the tools of directed lending after the massive drive of bank nationalisation, although as years passed by the status of priority sector has been degraded and their contributions to provide credit to priority sector has declined to a greater extent in India. However, Indian states are not homogeneous units. The level of economic development of Indian states is different. The amount of credit follow to key sectors under priority sector from nationalised commercial banks diverges across the Indian states and the discrepancy between the actual credit flow and the target set by Reserve Bank of India under priority sector lending varies over these states. This may lead to regionally disbalanced economic development.

Under this backdrop, on 50 year of nationalisation of commercial banks in India, they revisited the issue of the trend and progress of priority sector lending of the nationalised commercial banks in Indian states over the period 1972 to 2018.

The primary objective of their study was to assess and compare the priority sector lending by public sector commercial banks in the Indian states. Another objective of their paper was to analyse the trend of the priority sector lending by public sector commercial banks in the Indian states over 50 years.

They concluded that the public sector commercial banks have provided same percentage of their total credit to the priority sector in the Indian states irrespective of their level of economic development.

The chair had an interesting discussion with the students of Calcutta University and Amity University. This session had enthusiastic participation of the students.

The **last** paper of the session was titled **"**Economic Reforms and its Impact on Banking Sector Development in India since1991**"** and it was presented by **Sakhi Roy,** Assistant Professor, Amity University, Kolkata, West Bengal and **Dr. Subrata Kumar Ray**, Principal, Prabhu Jagat Bandhu College, Howrah, West Bengal.

They highlighted how the banking system is central to a nation's economy. Banking system is at the centre of economic activity and its health affects the entire economy. The banking system is one of the few institutions that impinge on the economy and affect its performance for better or worse. They act as the development agency and are the source of hope and aspiration of the masses. To achieve some social and economic goals, it is necessary to have a clean, diversified, viable, efficient and low-cost banking system fully committed to growth with justice. Inefficient credit, money and capital markets may crowd out the investment by making credit or capital more expensive. According to World Development Report (1989), the countries with well-developed financial system grow faster than the countries with weak financial system. Hence, given the interdependence between the two, economic reforms have an impact on the Banking Sector Development.

The Major objective of their study was to access the impact of major EconomicReforms undertaken since 1991 on the Banking Sector Development in India.

Given the crucial role that Banking Sector plays in an economy, they hypothesized that Economic Reforms will have a positive impact on the Banking Sector.

They concluded that Banking Sector Development depended on dynamism and efficiency of the Economic Reforms and financial development reciprocally influence each other in a mutually reinforcing manner.

The chair concluded the session by discussing the role of Nationalised Banks, discussion on NPAs and run through of 50 years of Nationalisation of Banks.

Valedictory Session

The valedictory session of the conference was presided by Professor Biswajit Chatterjee, President of the Parishad. After the initial felicitation and presentation of shawl by Dr.Ruma Bhattacharya, Secretary of the Parishad, Prof. Alaknanda Patel began her valedictory address .The theme of the address was the journey of Indian economic Ideas over the years and the role played by journals like the Indian economic Journal and the economic and Political Weekly.Her father Prof Amiya Kumar Dasgupta, along with Sachin Chaudhuri took a leading initiative in establishing the second one as the then *Economic Weekly*. Many of the debates about planning and its execution in the Indian economy were debated in the pages of these journals by the leading economists of that time.She expressed the hope that the discussions and debates on economics would continue to enrich the profession under successive generations and build up the Indian paradigm in economics.

Professor Chatterjee, in his remarks, thanked Dr Patel for her contributions to the growth and development of the Bangiya Arthaniti Parishad , and particularly , this year, her blessings have inspired the younger generation of economists to pursue knowledge in different dimensions of this social science discipline. Special thanks were given to the Principal , Faculty Members ,Staff and students of Bethune college for making the 40th Conference a grand success.

Book Review

I. The Gains and Pains of Financial Integration and Trade Liberalization: Lessons from Emerging Economies, Edited by Rajib Bhattacharyya, Emerald Publishing Limited, UK, 2020, ISBN: 978-1-83867-004-7 (Print).

Globalisation as a process of making countries closer to each other , and enhancing trade relations among them has been recognized as a major paradigmatic shift in the discourses of contemporary world. Given the inherent asymmetries prevailing in these economies, there are gains as well as losses associated with enhanced trade relations between countries, and the process has been augmented by freer flows of finance capital amongst them. What we call financial integration in modern parlance is nothing but combination of flows of foreign direct investment and foreign portfolio investment among the economies. The present volume contains important analytical case studies regarding the effects of trade openness and financial integration in the emerging economies and tries to answer the basic question asked in the theory of international trade, viz, who gains and who looses? The approach taken by most of the paper writers is to test alternative testable hypotheses put forward in the context of financial globalization and trade liberalization with the help of modern econometric methodology, and check whether such a process has actually been growth promoting and volatility dampening at the same time in these economies. The authors have rightly and cogently argued that the rest test of any doctrinal position in the domain of economic analysis lies in the actual experiences and thanks to the availability of large number of good quality data at the national and international levels , such checking could be done with robust methodology .The bonus of the book lies with the brilliant introduction authored by the editor linking the papers collected in the present volume.

There are twenty papers in this volume. Almost all the papers involve econometric exercises involving the effects of trade liberalization or openness and/or financial integration on growth , volatility, risks , and efficacies of policies in different countries of the globe including India. The first chapter by Edeme, Nkalu, Aduku and Benedict attempts to test whether growth-output volatility in many African nations during the last two decades was seriously affected due to trade openness and financial integration, and finds that there exist positive associations between these phenomena more in the longer run than in the short run.The same set of questions for Brazil, China and India are taken up Das and Ghosh in the second chapter of the volume during 1990-2016,using Unit Roots Test, Johansen Cointegration test and causality test in a VAR set up with the result that only for China , Globalisation and FI factors have affected per capita GDP, but not so for Brazil and India. In chapter 3, Gangopadhyay, Billah and Jain, have sought to use latent variable modeling of a multidimensional index of economic and financial integration of Australia with Arab and other emerging South Asian countries , and find that excepting Israel and Oman, Australia's trading partners in the Middle East have little integration with the global economy. Chapter 4 by Anindita Sengupta uses time series econometrics tools to find that the effects of liberalization of domestic financial sector and capital account have been quite stimulating for the Indian economy during the first quarter of 1996-97 to the second quarter of 2018-19, but for Brazil, the inflation has significant long run negative impact on its growth rate. The dynamic panel data approach adopted by both chapters 5 and 6 , for selected emerging countries chosen from the data set of the World Bank and the United Nations respectively, confirm the positive impact of FDI on economic growth of these nations and link between trade openness and financial openness with growth of GDP is found to be strongly positive, although the impact of the second tends to become somewhat blurred in view of the lack of complimentary policies. An important contribution by Pal, Chakraborty and Ghose in chapter 7 of the volume attempts to determine the existence of simultaneous relationship between economic growth, income inequality , fiscal policy and trade of a group of 13 emerging economies during 1980-2010 with the help of a simultaneous panel model incorporating the underlying non-linearities among variables. Apart from estimating the two way non-linear relations between economic growth, income inequality and total trade , the paper also finds positive and significant effect of gross capital formation, inflation , population growth and human capital , domestic fiscal and monetary policies and credit creation on economic growth, and negative impact of fiscal policy on income inequality. The theoretical underpinnings of such econometric exercises broaden our understanding of the working of the liberalized regime with financial integration.

Some papers (chapter 8 on Digital Financial Integration, chapter 9 on the Evolution of India's balance of payments during the liberalized regime, chapter 10 on risk perception on FDI in some emerging countries, chapters 11 and 12 on the effects of financial liberalization and integration in India on some Asian economies) convey important episodic messages that enrich the volume with perceptions of benefits of gradualist approaches rather than on full scale liberalization at one go. Volatility of stock markets in India following FII flows and the tendencies for imported inflation on the Indian economy are nicely captured by the scholars in chapters 13 and 14 of the volume. The debates on capital account convertibility and financial crisis have been elegantly reviewed by the contribution of Mukherjee and Karmakar in chapter 15. An introspective analysis has been attempted in chapter 16 regarding the scope for international money laundering in an era of liberalization and financial integration with help of a simple structural model.

Rest of the papers in the volume are case studies (chapters 17,18,19 and 20) dealing with different aspects of India's responses in the liberalized scenario with respect to strategic partnership with Mexico and Japan, trade complementarities with ASEAN countries or FDI flows between Vietnam and India, and the ultimate taxonomic categorization of alternative measures of financial integration.All these are crucial aspects in a liberalised regime and globalization experience during the four decades, have exposed some crucial asymmetries in the world economy, as a result of which we do not get convergence and congruence in our quest for enhancing the growth trajectory in the emerging economies.

The present volume is an important addition to the literature on trade liberalization and financial integration encompassing so many analytical and practical issues under one cover. The editor has done a commendable job in bringing together such an important reference book for the researchers. The production and printing by the publisher is excellent.

Biswajit Chatterjee

II. Understanding India's New Political Economy & Business: Towards a Rapid Transformation, Edited by Anirban Ghosh,Netaji Subhas Open University, Kolkata, 2020, ISBN: 978-93-82112-73-0.

The innovative approach taken by the School of Professional Studies of the Netaji Subhas Open University, Kolkata in bringing together the diverse views of India's new political economy and business, is indeed commendable for two reasons. First, it makes the teachers, students and scholars in the field of Economics, Commerce , Sociology and Political Science aware of the new developments that have taken place in recent years in Indian society. Second , as a professional university aiming to spread knowledge in the open mode, the volume reaches to the vast population of the country the requirements for reflecting on the new developments. The book serves both the objectives of education and outreach elegantly and the editor deserves compliments for undertaking this endeavour in an elegant fashion.

There are fifteen papers written by scholars from the disciplines of Economics, Commerce , Sociology and Political Science , each pointing to a newer dimension that have evolved over the years. After almost 75 years of our political independence , India still suffers from the ills of poverty, deprivations, unemployment and low human and social progress, although in quantitative terms there have been progresses in a number of indicators. There have also been structural transformation in diverse dimensions of the society and economy and this requires reflection on the emerging issues which the volume attempts to address. These include women empowerment and political participation, growth of MSMEs, Panchayati Raj system and its functioning, programmes of poverty alleviation, India's policy towards the East Asian nations, egalitarianism and democracy, case studies of different backward areas , tax reforms , and social progress under globalization. Covering such vast areas in one book is a difficult task and thanks to the rich contributions by the authors, the endeavour has been successful. Taken together, the papers in the volume contain rich teaching materials for the students of the distance learning mode, as they do not always have access to the reports, statistics, and research papers in foreign journals. Thus the educative value of the volume is immense. Knowledge spread always has externalities and such efforts as are attempted by the NSOU through this volume, does contribute to social transformation through the spread of knowledge and its outreach to the millions of education- hungry people of our country.

The production quality and printing by the University's press is of very high order and its price is reasonably moderate. This book is a valuable addition to the shelf of the teachers, students and research scholars in social science.

Biswajit Chatterjee

GUIDELINES FOR THE AUTHORS

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