Utpal Kumar De
Manoranjan Pal
Premananda Bharati
Editors

Inequality, Poverty and Development in India

Focus on the North Eastern Region

Springer

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Foreword

The book entitled "Inequality, Poverty and Development in India: Focus on the North Eastern Region" has certain distinctive features. First, it approaches issues in human welfare from a multidimensional perspective. It is now well recognized that the traditional income-based poverty measures judge human welfare only partially. The various chapters in this book go beyond considering deprivation of income dimension and judge social development from several non-income dimensions such as education, nutrition, environment, and social stability. Second, as the subtitle indicates, the book especially focuses on the north-eastern part of the country which has remained relatively under searched. Hence, the chapters in this book have potential to draw attention of academic community and policy-makers interested in the development of the northeast India. Third, the authors advocate an integrated approach to address the economic, sociological, political, and anthropological factors related to the issues of social development. In this respect Profs. Utpal Kumar De of North-Eastern Hill University, and Manoranjan Pal and Premananda Bharati of Indian Statistical Institute have done a commendable job by bringing out this volume.

The papers included in this volume address a number of issues related to Millennium and Sustainable Development Goals. They cover a number of issues related to government and private institutions, corruption, rural–urban disparity, financial inclusion centering on inequality, poverty, and development. Advanced tools like Benson's splitting technique, cointegration, vector autoregression, and panel data techniques have been used. The volume thus deals with state-of-the-art techniques to examine problems of inequality and poverty. It is also encouraging to note that environmental issues have occupied a substantial place in the volume. An entire part out of the three parts in the volume is devoted to the environmental questions. This is as it should be in a book that focuses on the northeast.

I congratulate the authors and the three editors for their joint effort for a timely publication of such an important volume. It enhances our understanding of several issues related to poverty and inequality. I do hope that it will be helpful for further research as well as policy formulation.

Manoj Panda
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Preface

United Nation's Millennium Development Goals (MDGs) are the stepping stones of developmental efforts in the new millennium. It sets eight goals to be achieved by the end of 2015. Amelioration of extreme poverty comes in the forefront of this declaration. The other goals range from promoting gender equality and empowerment of women, reducing child mortality, improving maternal health, and preventing the spread of HIV/AIDS to ensuring environmental sustainability. In these UN Millennium Development Goals, targets were set to achieve each of these goals by 2015.

The increasing inequality in income, wealth, and consumption is a great concern not only for India, but also the entire developing world is afflicted with this problem. The growing inequality often hinders achieving the developmental goals according to its full potentials.

Though there is significant improvement in the poverty reduction in both rural and urban areas, there is a significant rural–urban variation in the achievement across the states. The rural–urban gap in the poverty ratio varied from 1% in UP to 29% in Mizoram during 2011–2012. Also, there is significant variation in male female poverty ratio. We have to search for ways and means to tackle the issues of inequality to improve the welfare across all sections of the society. Lack of entrepreneurship and sluggish manufacturing growth are some of the important obstacles of generating employment and that in many ways lead to social disorder and sectarian movements, which further impedes development activities.

So far as amelioration of poverty is concerned, a significant reduction in the percentage of population living under poverty has already been achieved in India. The incidence of poverty in India came down from about 51% in 1990–1991 to 37% in 2004–2005 and thereafter to an overall figure of 22% in 2011–2012. The head count ratios of rural and urban poverty percentages were about 26 and 14, respectively. Though a remarkable progress in this respect has been achieved so far, there are about 250 million people living below the poverty line of which more than 200 million are in rural areas. Even now about 1 in every 5 persons in India is below the national poverty line.

In the world scenario also, the progress is commendable. According to the most recent estimates, in 2011, about 17% of the people in the developing world lived below $1.25 a day, which is significantly lower than 43% figure of 1990. This means that, in 2011, just over one billion people lived on less than $1.25 a day, as compared with 1.91 billion in 1990 in this world. Despite significant progress, we observe hunger, malnutrition, and starvation death in many parts of the world particularly in a number of countries in Asia and Sub-Saharan Africa. This is associated with the disturbances in social order including terrorism in West Asia and parts of Africa rendering many people homeless and also suffering from the lack of adequate survival materials and opportunities. This phenomenon is also observed, though in smaller scale, in many parts of India. One may recall the recent past incidences of rampant terrorism in Kokrajhar district of Assam in 2012 and 2014.

Problems are there with the method of identifying the target population. Several methods applied in the estimation of the extent of poverty and its gravity make the authorities confused on the process of eradication mechanism. Defining poverty measure as the percentage of people with income less than US$ 1.25 a day represents an example of income-focused approach to poverty. In recent past fixing of 32 INR per capita daily in India as poverty line ushered huge debate, which is about half of a USD. The poverty line defined by the Tendulkar Committee did not reflect the changing times and aspirations of the people. Under the growing income, expenditure and the economic structure of the country in the previous decade with consequent changes in people's perspective led to the setting up of the Expert Group headed by Dr. Rangarajan. The committee has re-computed the average requirements of calories, fats, and proteins on the basis of the 2010 ICMR norms, rural–urban gender distribution of population as per 2011 Census and employment distribution status. People's capability to save is also considered. The new poverty lines were worked out as the monthly per capita consumption expenditure of Rs. 972 in rural areas and Rs. 1407 in urban areas. Estimation of poverty line by Rangarajan Committee is based on an independent survey of households by CMIE. As per their method, a household is considered to be poor if it is unable to save and this yields results that are remarkably close to those derived using the NSSO data. This provides additional evidence in support of the poverty line derived by them. Health and health care, gender inequality, and environmental sustainability are also the other important issues related to the overall development of a nation.

The aforementioned goals are, however, closely interlinked or interdependent and cannot be tackled only through the development of economic activities. Just addressing issues partially without an integrated approach may lead to imbalances in the development of various dimensions. Simultaneously, the allocation of resources and inclusiveness of all sections of the society and across both the gender are pertinent to the all round progress of the society. Deprivation of people from the growth process, exclusion from the decision-making process even in this decentralized institutional setup, is found to create several bottlenecks for the progress. Some forces always operate in the society to counter such progress and preserve poverty and inequality. Market mechanism and service delivery systems failed to

completely eradicate poverty, reduce inequality even after so many commissions and strategies undertaken by the governments. Various societal and political forces also play important roles in matters of development. For example, superstitions, particularly in the rural areas in many cases, cause social disorder and take societies backward even today. Lack of education gives more chances to such forces to operate successfully. Despite matrilineal systems in some tribal societies of northeast India, women rarely participate in the political decision-making process. Thus it needed a concerted effort to address the sociological, political, anthropological and economic factors related to those issues. It is also needed to identify the relevant issues, suggest possible measures as well as delivery mechanism, etc., by re-examining the earlier measures and delivery systems.

Under these circumstances, we decided to have a fresh look into the matter and see how far the Millennium Development Goals have been achieved by the target year of 2015 in India and its adjoining areas, and more particularly in northeast India. The region has been almost disconnected from the mainland India over decades since Independence and deprived of several opportunities. Despite being the zone of one of the 18 hotspots of biodiversity in the world, and having rich mineral, forests, climate, heavy rainfall, etc., the region is yet to observe noticeable growth of manufacturing industries, tourism, sustainable resource management practices for the removal of poverty and promote the crippled regional economy.

However, there is a recent effort to integrate India with its eastern neighbors, particularly the ASEAN and form a bigger subregional cooperation through better connectivity under India's Look/Act East Policy and provide the region ample scope of socioeconomic development vide social, economic opportunities. Yet, there was a need to see the loop whole in the achievements and suggest measures for meeting the targets and go beyond the Millennium Development Goals.

In the context of climate change, agricultural sector faces serious challenges to meet the sustainable livelihood of the people especially for the vulnerable groups. Due to faulty strategies of single goal in the early stages of planning, farmers in many cases lost their indigenous techniques of production. Indiscriminate use of hybrid seeds, chemical fertilizers and excessive use of groundwater resources are largely responsible for the environmental pollution and worsening of soil quality. There is an urgency to explore the strategies in order to address such burning issues. The initiatives taken by the Government of Sikkim to ban the chemical fertilizers in agricultural sector are no doubt appreciable steps toward environmental sustainability.

Quality of environment is also directly and indirectly linked with the growth process. Thus achieving sustainable progress is another target and remains elusive. In terms of reduction in pollution, carbon dioxide emission, deforestation, etc., India is far behind the expectations. The growth of agricultural production has been decelerated substantially in recent decades and whatever institutional attempts have been undertaken, the benefits do not reach to all sections of the society.

From the above discussion, it is clear that we could not achieve the MDGs in all targets and there are also significant spatial variations. Thus it is high time we review our achievements and lapses incurred in comparison with the targets of the MDGs.

Thus the book discusses the fundamental issues of inequality, development, environment relationship focusing northeast India and we believe that it will be helpful toward policy formulation and further research in various lines. The research outputs presented here will also help the planners, politicians, and the social workers.

Shillong, India   Utpal Kumar De
Kolkata, India   Manoranjan Pal
Kolkata, India   Premananda Bharati

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Editors and Contributors

About the Editors

Utpal Kumar De is currently Professor of Economics and also the Head of Department of Economics at the North-Eastern Hill University, Shillong, India. Professor De has been engaged in teaching at postgraduate level since 1994. His research interests include agricultural economics and rural development, issues on environmental and natural resources, climate change adaptation, and empowerment of women. Professor De has visited Europe and Asia for his various research projects and delivered keynote and invited lectures at a number of conferences. Besides presenting over 60 research papers in various international and national conferences, he has published seven volumes, completed a number of research projects, and published over 75 research articles in reputed national and international journals. The Marquis Who's Who Publications Board certifies that Utpal Kumar De is a subject of biographical record in Who's Who in the World 2013 Pearl Anniversary Edition, inclusion in which is limited to those individuals who have demonstrated outstanding achievement in their own fields of endeavor and who have, thereby, contributed significantly to the betterment of contemporary society.

Manoranjan Pal is currently Professor in the Economic Research Unit (ERU) of the Indian Statistical Institute (ISI), Kolkata. At the institute, besides teaching graduate and postgraduate courses, he is also engaged in carrying out projects of the Government of India and other organizations, while also guiding doctoral students. He was Head of ERU and Professor-In-Charge of Social Sciences Division (SSD) of the ISI. He worked as Member Secretary, Board of Directors, International Statistical Education Centre (ISEC), Kolkata, for more than 10 years starting from February 1999. Professor Pal has held the post of a Visiting Professor at many international institutions. He has published more than 100 papers in reputed national and international journals and books. His research interests include the measurement of poverty, inequality and segregation, applied econometrics, health and nutrition, and so on. Professor Pal's name is included in the World 2013 Pearl Anniversary Edition in Marquis Who's Who, inclusion in which is limited to those individuals who have demonstrated outstanding achievement in their own fields of endeavor.

Premananda Bharati is currently Visiting Professor at the Biological Anthropology Unit of the Indian Statistical Institute (ISI), Kolkata. He was Professor and Head of the same unit before his retirement in 2016. He served at the institute for more than 30 years. His fields of interest include human biology, physical anthropology, growth, nutrition, poverty, gender issues, and demography. He has taught at the Center of Statistics, Human Sciences Research Council (HSRC), Pretoria, South Africa. Professor Bharati was awarded the International Man of the Year (1993/94) by the International Biographical Centre, Cambridge, England; and Man of the Year 1994 by the American Biographical Institute, North Carolina, USA. He is a fellow of the Human Biology

Association, Michigan, USA. In addition to teaching, he has published more than 100 research papers in journals of national and international repute and completed a number of research projects. He has visited America, Europe, and Asia extensively in connection with short-term courses and has delivered invited lectures and presented papers at various international and national seminars and conferences.

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Abbreviations

ACI	People Republic of China and India
ADB	Asian Development Bank
AFO	Anti-famine Campaign Organisation
ANOGI	Analysis of Gini
ANOVA	One-way Analysis of variance
APRB	Arunachal Pradesh Rural Bank
APSCAB	Arunachal Pradesh State Cooperative Apex Bank
ARCH	Autoregressive Conditional Heteroscedasticity
ARDL	Autoregressive Distributed Lag
ASCARD Bank	Assam State Cooperative Agricultural & Rural Development Bank
ASEAN	Associations of Southeast Asian Nations
ATMA	Agricultural Technology Development Agency
BPL	Below Poverty Line
BTAD	Bodoland Territorial Area Districts
CAGR	Compound Annual Growth Rate
CHIP	China Household Income Project
CPI	Consumer Price Index
CRP	Community Resource Persons
DEBTGDP	The ratio of debt to GDP
DoLR	Department of Land Resources
DRDC	District Rural Development Cell
ECM	Error Correction Model
EHI	Economic horizontal Inequalities
EHII	Estimated Household Income Inequality
ENERGYO	Energy Output
FAO	Food and Agriculture Organisation
FDI	Foreign Direct Investment
FE	Fixed Effect
FGLS	Feasible Generalized Least Squares

FGT	Foster–Greer–Thorbecke
FMS	Farm Management Studies
FOODP	The Index of Food Prices
GA	Geographical Area
GCA	Gross Cropped Area
GDI	Gender-related development index
GDP	Gross Domestic Product
GEXP	Government Expenditure
GSDP	Gross State Domestic Product
GSDPA	Gross State Domestic Product from Agriculture and Allied sector
HCI	Cultural status horizontal inequality
HD	Human Development
HDI	Human Development Index
HDR	Human Developments Reports
HEI	Horizontal Economic Inequality
HPI	Horizontal Political Inequality
HR	Human Rights
ICAR	Indian Council of Agricultural Research
ICDS	Integrated Child Development Services
ICM	Integrated coastal management
IHD	Index of housing deprivation
IIM	Indian Institute of Management
IMR	Infant Mortality Rate
IPM	Integrated Pest Management
ISCED	International Standard Classification of Education system
KCC	Kisan Credit Cards
KVKs	Krishi Vigyan Kendra's
LFEY	Live fish Equivalent Yield
LSGA	Local Self-Governance Act
MANAGE	National Institute of Agricultural Extension Management
MDGs	Millennium Development Goals
MDPI	Multidimensional Poverty Index
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MNC	Multinational Corporations
MPCE	Monthly Per capita Consumption Expenditure
MPI	Multidimensional Poverty Index
MRP	Mixed Reference Period
MSME	Micro, Small, and Medium Enterprises
NABARD	National Bank for Agriculture and Rural Development
NCO	National Classification of Occupation
NDC	National Development Council
NER	North-eastern Region
NFHS	National Family Health Survey

NSA	Net Sown Area
NSSO	National Sample Survey Office
NSSO	National Sample Survey Organisation
OBC	Other Backward Classes
OLS	Ordinary Least Square
PAB	Planning Advisory Board
PCA	Principal Component Analysis
PC-EPI	Planning Commission-Environmental Performance Index
PCGDP	Per Capita Gross Domestic Product
PCNSDP	Per Capita Net State Domestic Product
PCTE	Per Capita Total Expenditure
PEG	Poverty-equivalent Growth
PEI	Poverty Elasticity of Inequality
PIP	Participatory Identification of Poor
POPG	Population Growth
PPG	Pro-poor Growth
PPP	Purchasing power parity
PPS	Probability Proportional to Size
PQLI	Physical Quality of Life
PRC	People Republic of China
RCH	Reproductive and Child Health
RHS	Rural Household Survey
RRB	Regional Rural Bank
SBI	State Bank of India
SC	Scheduled castes
SEP-HRD	Society for Environment Protection and Human Resource Development
SGSY	Swarnajayanti Gram Swarojgar Yojana
ST	Scheduled Tribes
TFP	Total Factor Productivity
TO	Trade Openness
ToT	Transfer of Technology
TPE	Total Poverty Elasticity
UBI	United Bank of India
UNDP	United Nations Development Programme
URP	Uniform Reference Period
WCED	World Commission on Environment and Development
WDIW	Weighted Deprivation Index for Women
WECD	World Commission on Environment and Development
WPR	Work Participation Rate

Introduction

Utpal Kumar De, Manoranjan Pal and Premananda Bharati

This volume is not just a compilation of some chapters on the concerned aspects of inequality poverty and development issues. The chapters included in this volume address a number of issues related to two important aspects of MDGs, namely, poverty and inequality.

Poverty in earlier days used to be considered as an incidence of income deprivation. However, in the discourse of new development, paradigm poverty is considered as an acute case of capability deprivation and it is multidimensional in nature. It has been reflected in the studies of the researchers that there is no such straightforward relationship between Multidimensional Poverty Index (MPI) and official income/consumption-based poverty estimates. Hence, it is strongly recommended to incorporate the other aspects of human life such as education and health in the estimation of poverty.

The book covers a wide range of issues related to inequality, poverty and development, role of government and private institutions, corruption, etc. Development and poverty alleviation is examined in relation to environmental resource management as well as institutional arrangements. A large number of chapters address the issues in northeast India besides some cross-country and national analyses.

Besides introducing some new questions on development, sophisticated tools have been used like Benson's splitting technique, cointegration, vector autoregression, panel data technique like fixed effects and the system generalized methods of moments (SGMM), qualitative content analysis, for examining growth-inequality relationship, public–private investment and growth relationship, corruption–development relationship, etc. Other nonlinear techniques have also been employed by some authors. Further, Oaxaca Blinder decomposition method in consumption expenditure to show the endowment and return to endowment effects, spatial correlation-regression to analyze regional variation, diversification and adaptation index to check farmers' response to climate change, etc. have been used to find out socioeconomic complexities, and their impacts on poverty, human development.

We have divided the volume into three major parts: (1) Inequality, Growth and Development; (2) Poverty at the State Level with Focus Northeast; and (3) Agricultural and Environmental Perspectives.

Studies on reinvestigation of growth-inequality relationship, relationship between public and private investment in the process of national income growth, and the role of corruption in affecting economic growth are included in Part I.

The first chapter of Part I examines the relationship between economic growth and inequality in Asian countries. Using a panel regression analysis and Benson's splitting technique, the chapter reaffirms the inverted-U shape relationship. After the threshold limit of FDI, the relationship takes the form of a sinusoidal curve that has significant policy implication.

The second chapter investigates the effects of the institutional quality along with socioeconomic factors on foreign direct investment (FDI) across the countries using Ordinary Least Square (OLS) and Fixed Effect (FE) method. The study suggests that while corruption lowers FDI significantly, democracy, government stability, law and order, civil liberty, and political rights have significant positive effects on FDI inflows. Results of the study also indicate that increased levels of educational attainment and openness in a trade regime lead to a higher level of FDI. Thus the policy prescription to attract higher FDI requires focussing on ensuring better institutional quality with lower level of corruption along with raising the skill base of the labor force in an outward looking external trade regime.

Impact of corruption on economic growth has been examined in the second chapter in a nonlinear framework by using a cross-country data set. In general, corruption is not found to prohibit growth. But after a threshold level of corruption, a rise in it has adverse impact on the growth process. The results obtained after controlling for fixed effects and endogeneity biases by utilizing the system generalized methods of moments (SGMM), the most advanced, robust, and well-recognized technique in the literature.

The third chapter is devoted to the empirical examination of Kuznet's Hypothesis for India using some time series techniques for the period 1964–2007. Results reveal no relevance of Kuznets Hypothesis, instead the relationship is U-shaped in nature, implying that initial increase in GDP per capita leads to decrease in inequality, later on as GDP increases, inequality tends to increase. Among the control variables CPI (price level) is found to be positively and government expenditure negatively related to inequality, while trade openness showed no significant relationship.

The next chapter by Anoop S. Kumar analyzes two rounds of NSSO data, viz., 61st and 66th, to compute Gini coefficient and estimated overlapping index for the whole as well as the subgroups using ANOGI methodology. The analysis reveals that the level of overall inequality as well as the intergroup inequality is on the rise in Kerala as well as India during the period of analysis. The study also identifies the possibility of stratification among the group "Others" for both India and Kerala. Further, it finds that SC's and ST's (in particular) bear the burden of the increasing inequality. The indication is that the various welfare measures initiated by the

central as well as state governments might not have reached the majority of these downtrodden communities.

Chapter 5 also examined horizontal economic inequalities as a cause of rising ethnic conflicts in Boroland areas of Assam. Standard inequality measure like Group Gini index of asset holding and opportunity is explained in the chapter and linked with rising violence in the area.

The study of Archita Ghosh and Tithi Bose (Chapter 6) examines different factors playing determining role in generating benefits under MGNREGA, the largest rural employment guarantee scheme in India. Household-level study in two districts of West Bengal with econometric analysis reveals that besides a few social factors, political patronage plays a vital role in generating benefits. Economic factors have almost no role in the whole process.

A district-level study on financial inclusion through Kisan Credit Card in Arunachal Pradesh and its convergence pattern is presented in Chapter 7. The chapter focuses on the questions of (a) whether there has been a catching-up tendency (β-convergence) of slow-growing districts with fast-growing ones; and (b) whether there has been a tendency toward convergence (σ-convergence) in agricultural productivity during 2000–2010 over a representative cross section of Arunachal Pradesh districts. The chapter also tests the operation of Galton's fallacy through growth-terminal level regressions for robustness of the results. The tendency of low-KCC concentration districts to catch up with high-KCC concentration districts is studied through the unconditional β-convergence approach, and the operation of Galton's fallacy through growth-terminal agricultural productivity-level regressions. The diminution of variance in productivity levels is tested by using the σ-convergence approach and the robustness of the results is tested by using alternative test statistics.

Chapter 8 by K.K. Das examines the insurance and banking habits of the people of Char areas (riverine) in lower Assam and how it regulates their economic stability. A log-linear model and contingency table have been considered in this study. It is observed that the proportion of insured households in the low-income group is nil; it rises to a small in the lower middle group and then goes up in the upper middle group and after that steadily increases to the high-income group.

Thereafter, Chapter 9, the final chapter of the part describes the institutional barrier for investment and development in Nagaland. In his opinion, Nagaland's economy from the usual economic indicators like Gross State Domestic Product (GSDP), Per Capita Income, Human Development Index (HDI), economic growth rate, etc. provides a misleading picture about the progressive performance of the state. There are other indicators which show the weak side of the state's economy: the service sector, the public administration contributes nearly a fifth of the state's GSDP, the industrial sector is rather very small, the infrastructure is poor, and the state is dependent heavily on the central government assistance. The state's economy has these ills because of the political problem that it is stuck in, resulting in the existence of many nationalist groups and a consequent weak government. Unless this is solved, Nagaland will continue to have the same economic problems it is having.

Part II deals with the regional analysis of poverty and inequality with a special focus on north-eastern region of India.

District-level multidimensional poverty index (MPI) has been computed for northeast India and presented in Chapter 10 by S. Bagli. The MPI has been computed measuring the normalized inverse Euclidian distance of the actual vector of deprivation indicators from the worst situation of deprivation. The disparities among the states and among the districts in terms of the indicators under consideration have also been revealed. However, there is no straightforward relation between MPI of the states and percentage of population live below poverty line income.

Chapter 11 examines poverty, inequality, and relative deprivation among north-eastern states of India during 2004–2005 and 2011–2012 by using the 61st and 68th Consumer Expenditure Rounds of NSSO data. This chapter used headcount ratio to measure poverty, relative deprivation index to understand the level of deprivation among the north-eastern states of India. Gini coefficient is used for understanding inequality prevalence. Oaxaca Blinder decomposition method in consumption expenditure is used to show the endowment and return to endowment effects. Significant interstate and rural–urban variation in poverty and inequality have been observed. Oaxaca Blinder results show that sector, state, and education play key role in differences of mean expenditure of poor and nonpoor for endowment as well as return to endowment impact.

Chapter 12 entitled "Deprivation of Women in Northeast India: An Exploratory Study" by Papita Dutta critically examines the degree of inequality in some indicators of deprivation of women across the states of northeast India. In order to have an interstate comparison, a weighted deprivation index for women (WDIW) has been computed at the state level following Sen and Anand (1997). Only the relevant principal components of the indicators have been replaced in place of the indicators and weights are generated from Principal Component Analysis.

Chapter 13 analyzes state-wise level of living by a wide range of indicators like employment, per capita consumption expenditure, nutritional intake, educational attainment, demographic structure, literacy rates, household amenities, consumer durables, and summary of health indicators from the NSSO data. In this chapter, each of these indicators has been combined into a composite index called the standard-of-living index.

Effect of fiscal decentralization on the welfare of urban population in Nepal is addressed in Chapter 14. Urban poverty and growing urban (municipal) population pose the major concern in the development process there. From the association between fiscal decentralization and poverty reduction in the municipalities of Nepal, the author prescribes for the formulation of policy strategy for the better life of such rapidly increasing urban population is to be done as early as possible. Here, the poverty measures and fiscal decentralization variables are used for the study from 1983 through 2010. The comparison in the state of poverty and fiscal decentralization before and after the enactment of Local Self-Governance Act, 1999 (LSGA) in Nepal is also analyzed.

Chapter 15, however, tries to find out the efficacy of MGNREGA in a part of northern West Bengal. Analysis of the aggregate official data evinces that MGNREGA has fallen short of offering the envisaged number of person-days, and thus has not catered to the subsistence demands of the poor. In other words, clear relationship between the outreach of MGNREGA and the proportion of the poor households seems to be missing and this is likely to have little impact on the poverty eradication effects. Together with such disconnect, the chapter also highlights a few procedural dimensions which hold up the general fruition of MGNREGA.

In Chapter 16, Arindam Chakraborty tries to focus on the changing nature and extent of rural poverty in West Bengal during the period 1974–2012 with the help of different poverty estimates of various Expert Groups. Using growth-distribution decomposition analysis of the changes in rural poverty in West Bengal, the author shows that during 1958–1997 both coefficients of growth and distribution are highly significant, and growth effect on rural poverty in West Bengal is found to be stronger than inequality effect. This implies that rapid economic growth can be the best measure for eradicating poverty in India.

Chapter 17 analyzes spatial distribution of poverty levels from the viewpoint of several poverty indicators and looks into mitigation of poverty and sustainable development in north-eastern states of India through three important pillars of development, viz., economic, social, and education. Technique of spatial correlation of Moran (1950) is used with weights assigned by generalized weighting matrix W_{ij} to analyze the spatial relationship among education, income, and employment. All the selected poverty indicators have a high degree of positive autocorrelation among the states of northeast except Sikkim.

Using Census data, Prof. M. Dasgupta in her chapter (Chapter 18) finds that the failures of governance in providing relief to the starving Mizos were proximate causes of the 20-year-long insurgency and social unrest in the Mizo Hills from 1966 to 1986. On the other hand, Chapter 19 tries to capture the malnutrition and starvation of children in relatively backward and conflict prone districts of Assam. Children in country like India are affected by certain indirect factors such as poor governance, corruption, and poor implementation of rule of law (prime determinants of conflicts!). At the same time, in addition to these, there are direct impacts from ethnic conflicts, violent crimes, and sexual assault on women and children. All these cause unpredictability and uncertainties at home and in the local economy, even leading to loss of livelihood. The final outcomes are dehumanization of people trapped in unemployment and poverty, lack of schools (reasons for dropouts are mostly economic), and lack of access to healthcare services (poor public provisioning). All are significant determinants, which affect well-being in the families.

Part III includes chapters dealing with the agricultural and environmental resource management in relation to the maintenance of livelihood and economic prosperity.

Chapter 20 analyzes the integrated farming system for proper utilization of waste wetlands in different agro-zones (new alluvial, old alluvial, and coastal and saline) on a wide sector of downtrodden resource poor to marginal farming communities in

West Bengal. TOT-based research projects of low-cost updating agro-techniques were implemented at farmers' fields on the integration of aquatic food crops—cum—fish culture (sweet water, life fishes, etc.) following improvised INM system (organic, inorganic including micronutrients applied with proper dose and time) for enhancing productivity and economic viability (exhibited even >3.0-folds than that of farmers' practice) at sustainable level. From the study, it may be concluded that this improvised farm practice is imperative to utilize this vast unused wetland, particularly north-eastern part with impetuously for food, livelihood, engagement of household labors and ultimately, economic sustainability of rural people, who are inextricably linked to the system as well.

Another qualitative Content Analysis based on "Theory U" has been presented in Chapter 21 for suggesting best practicable way of sustainable resource use. The epistemological conceptual elements for implementation of strategies required for sustainability in generating competitive advantage in family farming activity can be done through competitive advantages models adaptations extracted from classical literature with the Triple-Bottom Line Sustainability precepts, which models the sustainable development throughout the relationship of social, environmental, and economic aspects.

The content analysis denotes that the indicators linked to family farming and sustainability have been used more frequently than those related to competitive advantages; this is due to the difficulty of finding specific content addressing sustainable competitive advantages for family farming.

In this sense, it was raised the basic competitive strategies for family agricultural activities as the Strategy for Value Creation which works the interaction between suppliers, farmer, customer, and the transformation of potential value; in another way, it was identified the Environmental Competitive Strategy formulated by Orsato (2012) that generates connections between the economic sector where the farmer operates, his position, the types of market, and his abilities to acquire resources and implement innovative strategies, that allow induce competitive advantage either by costs or through environmental cost leadership or eco-efficiency of processes is by differentiation through eco-differentiation processes or by the environmental brand consolidation. These factors raised should guide the farmer's market positioning that can be in operational excellence, innovation in product or customer relationship.

Growth of agricultural farm and its effect on poverty has been addressed in Chapter 22. High farm growth is associated with reduction in poverty in Sikkim, Tripura, Meghalaya, and Assam and the effect is reversed for Manipur. High growth of agriculture was noninclusive, and hence could not have impact on poverty in Arunachal Pradesh and Nagaland. Chapter 23 on the other hand analyzes the socioeconomic and environmental performance of north-eastern states. Land use, demographic pattern, growth of income and sectoral composition, inequality in income distribution, housing pattern and other amenities and livelihood and Planning Commission published environmental index have been analyzed. Correlation among poverty, per capita income, and environmental index has been computed, and the result reveals positive correlation between per capita NSDP and

environmental performance, while negative correlation is observed between poverty and environmental performance.

In Chapter 24, De and Bodosa examine the farmer's adaptability toward extreme climate behavior for sustainable progress in agriculture in northeast India. The important contribution of the chapter is providing a suitable index from the heterogenous ways followed by the farmers in the region to counter the adverse impacts of extreme climatic behavior. An adaptation index and diversity index are constructed and related to various determining factors to understand the factors responsible for adaptation for survival by the poor peasants in the region. Crop diversity is used as an adaptation technique followed by the farmers. Through decomposition technique the trend in contribution of diversification to the farm income has been examined. Also, panel data analysis has been adopted to find the effect of various factors on adaptability.

Dynamics of forest resource depletion in Assam is examined in Chapter 25. Estimation of exponential growth function shows that a slight depletion of stock would have series effect on depletion of such resources. He opined that a small decline in regeneration and a small increase in consumption may lead to notable deforestation. Impatience (discounting the future utility with higher rates) in planning may result in lesser consumption and lower stock in future.

The last chapter of the part by Banjul Bhattacharyya & Udaybhanu Bhattacharyya, however, shows the increasing role of women in the agriculture of northeast India.

Part I
Inequality, Growth and Development

Chapter 1
Does Economic Growth Increase Inequality?: An Empirical Analysis for ASEAN Countries, China and India

Partha Gangopadhyay and Biswa Nath Bhattacharyay

Abstract Even though 10 member countries of the Associations of Southeast Asian Nations (ASEAN), People's Republic of China and India (ACI) have adopted polices for archiving more pro-poor or inclusive growth. However, income and non-income inequality in ACI have witnessed an increasing trend in recent years. In view of rising inequality in fast growing Asian developing countries, it is important to study the relationship between economic growth and income inequity which could assist policy makers to adopt appropriate policy action for more inclusive growth. This paper undertakes an empirical analysis to examine if economic growth increases income inequality for ACI. The objectives of the paper are: (i) to develop a simple model of policy-induced growth which shows a nonlinear and wave-like relationship between growth and inequality; (ii) to provide an empirical support to the above model to establish that the intention to use economic growth and inequality as policy instruments to shape economic development can backfire since the possibility of a wave-like function receives an empirical support from ACI data; and (iii) to exhibit that the nonlinear relationship between growth and inequality

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