Index

Accelerated Irrigation Benefit Programme (AIBP), 111–112
Accessibility, 192
Accredited Social Health Activist (ASHA), 168–169
Action Against Hunger, 185
Afghanistan, 212, 216–217
  domestic and international response, 219–220
  food crisis during COVID-19, 215
  policy recommendations, 221
  reasons for food insecurity in, 217–218
  research objectives, research questions, and research methodology, 213
  results of the study, 220
  review of literature, 213
Agribusiness pricing, 96
Agricultural Credit Guarantee Scheme Fund (ACGSF), 28–29
  long-run effects, 35–37
  short-run effects, 35–37
Agricultural financing companies, 28
Agricultural free trade, 67–68
Agricultural growth, 4, 166
  long-and short-run effect of commercial bank's loan to agricultural sector on, 32–34
Agricultural growth sustainability
  long-and short-run effects of ACGSF on, 35–37
  long-and short-run effects of commercial banks' interest on, 34–35
Agricultural Insurance Scheme, 81–82
Agricultural labor (ALAB), 30
Agricultural land area (ALAN), 30
Agricultural machinery and capital (AMACH), 30
Agricultural output, 45
Agricultural pollination, 43–44
Agricultural sector, 4–5, 108–109, 145
Agricultural suicides, 81
Agriculture, 4, 12–13, 108
  effect on, 130–131
  in G-20 countries, 146–147
  in Nigeria, 27–28
  objectives, 5
  productivity, 42
  sector, 42
Agro-climatic zones, 13
Agroeconomy sector impact of Sinaloa in Mexico, 65–66
Agrupación Española de Entidades Aseguradoras de los Seguros Agrarios Combinados (AGROSEGURO), 86–87
Air pollution, 83
Akaike Information Criterion (AIC) criteria, 50, 101
Allocative efficiency (AE), 15
Allowance for the Widow, 126
Aman, 108–109, 111–112, 114–115
Analysis of variance (ANOVA) test, 109–111
Anchor Borrowers' Program (ABP), 28
Anchoring, 97–98
Aquaculture insurance, 86
Asian Countries, 87–90
Asian Development Bank, 192
Asuransi Usaha Tani Padi (AUTP), 90
Augmented Dickey–Fuller test, 50
Aus, 108–109, 111–112, 114–115
Australian Agency for International Development (AUSAID), 90

Autoregressive conditionally heteroscedastic (ARCH) model, 100
Autoregressive distributed lag (ARDL) model, 5, 30, 45–46, 195
  estimated ARDL long-run coefficients, 31, 33
  model, 7, 152
Availability, 192

Balochistan, 216
Bangladesh, 124
  government, NGOs and other responses, 133–137
  government and NGOs' responses to natural disasters in, 125–128
  methods (300), 129
  study findings, 129–133
Bangladesh Delta Plan (BDP), 126
Bank credit, 17
Bank finance, 5
Bank financing, 29
  materials and methods, 30–32
  results, 32–37
Bank loans, 5
Barro regression, 30
Bartlett's test, 195
Bhola cyclone, 125–126
Biases, 99
Biodiversity, 44
Block Exogeneity Wald test, 49–50
Boro, 108–109, 111–112, 114–115, 124–125
Bounds testing approach, 30–32
Breusch–Pagan test, 169–171
Burdwan district, 94–95
Bureau for Humanitarian Assistance (BHA), 216

Carbon dioxide (CO_2), 45–46
Carbon emissions, 42–43, 47
Casual labourers (CL), 237
Causality test, results of, 56
Central Bank of Nigeria, 28
Challakere markets, 100
Choice, 97
"Chronic" food insecurity, 164
Classical theory, 44–45
Climate change, 124
  mitigation, 43–44
Climate-related disasters, 214
Climate-smart agricultural Practices (CSAPs), 169–171
Cobb–Douglas production function, 109–111
Coconut Palm Insurance Scheme (CPIS), 88
Cointegration test, 32, 150–151
Commercial Agriculture Credit Scheme (CACS), 28
Commercial Bank Credit to Private Sector, 28–29
Commercial crops, 13
Commodity price volatility, 99–100
Compound annual growth rate (CAGR), 7, 165, 172
Comprehensive Crop Insurance Scheme (CCIS), 88
Comprehensive Disaster Management Programme (CDMP), 126
Conservation strategies, 44
Consumption-expenditure-based poverty estimation, 235–239
Convergence measurement in food security, 199
Coping strategies, 213
Coppock's index, 112
Correlation, 153
Corruption, 212
COVID-19
  and food insecurity, 218
  pandemic, 168–169
Crop diversification, 83
Crop growth simulation approach, 109–111
Crop insurance, 5–6, 80
  Asian Countries, 87–90
  China, 87–88
  empirical findings, 90–91
  European countries, 84–87
  France, 85

Germany, 85–86
India, 88–89
Indonesia, 89–90
literature review, 80–82
methodology, 82
objectives, 82
scenario in selected European and Asian Countries, 84–90
Spain, 86–87
towards sustainable agriculture, 82–84
Crop pollination, 44
Crop productions, 4
CSC, 13–14
CUSUM tests, 49–50
Cyclone Preparedness Program (CPP), 126

Daily earning, effects on, 132–133
Data Envelopment Analysis (DEA), 5, 15
brief review of existing literature, 15–17
data, 17–18
results and analysis, 19–21
TE model, 18–19
Decision-making units (DMU), 18
Deforestation, 43–44
Department of Agriculture, Cooperation and Farmers Welfare (DAC & FW), 172
Deposit money banks, 28
interest rate, 5
Descriptive statistics, 240–242
Deserted and Destitute Women and Maternity Allowance for the Poor, 126
Development, 4
Dickey–Fuller bound test, 50
Difference fixed effect (DFE) model, 199
Digital Agriculture Mission (DAM), 14–15
Directorate of Economics and Statistics (DES), 172
Disable Allowance, 126
Disaster Management (DM) Act 2012, 126
Disaster Management Bureau (DMB), 126
Disaster Management Policy 2015, 126
Disaster Risk Reduction (DRR), 126
Domestic rice price, 7
Durbin–Watson statistics, 53–55

East Lombok of East Java, 90
Ecological footprint, 45–46
Econometric analysis, 149
Econometric model, 99–100
for determinants of food security, 198–199
Economic disturbances, 214
Economic efficiency (EE), 15
Economic incentives, 145
Ecosystem services, 44
Education, effects on, 133
Efficiency, 12
Eidhi Foundation, 185
Eighth (8th) Five Year Plan, 126
Emergency Response Management (ERM), 126
Emerging market and developing economy (EMDE), 13–14
Endogenous growth theory, 44–45
Engle–Granger two-step test, 150–151
Entidad Estatal de Seguros Agrarios O. A. (ENESA), 86–87
Environment-related risks, 108–109
Environmental Kuznets Curve (EKC), 45
Environmental pollution, 46
Error correction model (ECM), 48
Error correction term (ECT), 35, 151
European countries, 84–87
Experimental Crop Insurance Scheme (ECIS), 88
Export logistics, 71–72
Export movements by system, Mexico, 72–73, 2013

Export subsidies, 68
Export-oriented crops, 13

Farm Income Insurance Scheme (FIIS), 88
Farmer decision-making, 97
Farmer Producer Organizations (FPOs), 13–14
Fertilizer consumption in kilograms per hectare (FCKPH), 150
Fertilizers, 14–15
Feudalism, 186–187
Financial risks, 108–109
Financial system development (FSD), 30
Financing, 28
Fiscal year (FY), 215
Fisher Chi-square ADF panel unit root test, 198–199
Fisher Johansen cointegration test, 150–151
Fisher-Johansen cointegration test, 153
Fisheries, 13
Flash floods, 7, 124
  affected sectors and extent, 130
  effect on agriculture and food security, 130–131
  effects on daily earning, 132–133
  effects on homestead and education, 133
  effects on livestock, 131–132
  socio-economic condition of respondents, 129
  unemployment, food insecurity and miseries, 129–133
Flood Action Plan (FAP), 126
Floods, 124
Focus group discussions (FGDs), 129
Food and Agriculture Organization (FAO), 42–43, 145, 164, 180–181, 192, 226
Food availability, 192
Food crisis during COVID-19, 215
Food crisis problem, 193
Food crops, 145–146
Food for Work and Test Relief programmes, 127–128
Food grains, 12–15, 165
Food Insecure and Poor (FIP), 230
Food Insecure but Non-Poor (FINP), 230
Food insecurity, 128, 179, 198, 213, 217, 226, 229
  challenge, 180–183
  COVID-19 and, 218
  gap, 230
  imagination, freedom, and, 179–180
  international food system and Pakistan, 183–186
  reasons, 214–215
  reasons for food insecurity in Afghanistan, 217–218
  under Taliban Regime, 218–219
  terminology related to, 229–230
Food insecurity estimation for the sample households, 239
Food Insecurity Experience Scale (FIES), 226
Food prices, 7, 144–145
Food production, 43–44, 114, 144
Food Savers, 185
Food Secure and Non-Poor (FSNP), 230
Food Secure but Poor (FSP), 230
Food security, 4–5, 144, 164, 192, 194, 212, 226
  agriculture, food security and rice production in G-20 countries, 146–147
  analysis of result, 172
  aspects, 7
  causes and consequences, 8
  data, 194–195
  data and methodology, 150–152
  econometric analysis, 149
  econometric model for determinants of, 198–199
  effect on, 130–131
  in G-20 countries, 146–147

index, 7–8
methodology and data source, 172
methods, 195–198
recommendations, 173–174
results, 153, 158, 200–201
review of literature, 165–172
survey of literature, 148–149
Foreign aid, 212
Foreign direct investment (FDI), 5–6, 30, 42
Forest coverage, 47
Forest ecosystem services, 44
Forestry insurance, 86
Framing impacts, 97
Free Trade Agreement (FTA), 64
Freedom, 179–180

G-20, 144, 146
agriculture, food security and rice production in, 146–147
GATT, 12–13
Generalized autoregressive conditional heteroscedasticity (GARCH) model, 6, 95, 99–100
data and methodology, 101
literature review, 95–101
results, 101–102
Global Alliance for Improved Nutrition (GAIN), 185
Global Hunger Index (GHI), 180–181
Global warming, 81
Globalization, 12–13, 42–43, 168
Government aid, 126–127
Granary of Mexico, 64–65
Granger causality test, 49–50, 56
Gratuitous Relief (GR), 134
Green Revolution, 12
Greenhouse gas (GHG) emissions, 42–43, 45–46
Greenhouse insurance, 86
Gross domestic product (GDP), 27–28, 171–172, 181–182
Gross State Domestic Product (GSDP), 228–229
Gross value added (GVA), 166–167
Growth, 4–7

Hannan–Quinn Information Criterion (HQ), 50
Haor regions, 124–125, 131
Headcount ratio (HCR), 229
Heteroscedasticity tests, 49–50
Heuristics, 99
behaviour, 98
judgement, 97
Higher levels of poverty incidence (HCR), 239
Homestead, effects on, 133
Horticulture, 13
Household Food Insecurity Access Scale (HFIAS), 226
Household Food Security Survey Module (HFSSM), 226
Hunger, 179, 192
Hybrid system, 80

Imagination, 179–180
Impact investors, 28
Indemnity-based insurance products, 81–82
Index-based system, 80
India, 93–94, 108–109, 193
status of food security in, 200–201
India, China and the United States (ICU), 5–6, 42
data source and variable description, 47
empirical model, 48–50
literature review, 44–46
objectives of study, 47
recommendations, 56–57
research gap, 46–47
research methodology, 47–50
results, 50–56
Indian agriculture, 12, 166
Indian economy, 13, 165
Indian states, 15
Indirect use value, 43–44
Indo-Gangetic basin, 109–111

Institute of Business Administration (IBA), 186–187
Insurance products, 80–81
Insurance sector, 83
Inter-American Development Bank (IDB), 71
Intergovernmental Working Group, 226
International food system, 183–186
International Monetary Fund (IMF), 192, 215
International trade, 68
Internet of Things (IoT), 168–169
Intuition, 97–98
Intuitive judgement, 97
Irrigation, 108, 111–112, 114–115

Japan International Cooperation Agency (JICA), 90

Kajer Binimoye Taka (KABITA), 134
Kao cointegration test, 153
Kerala's people campaign model, 166–167
Keynesian theory, 44–45
Kharif crop, 94–95
Khyber Pakhtunkhwa (KPk), 216
Kisan Card, 216
KMO test, 195
Krishi Vigyan Kendra, 13–14

Leisure, 43–44
Liberalization, 12–13
Likelihood ratio trace statistics, 150–151
Liner log, 109–111
Livestock
  effects on, 131–132
  insurance, 86
Local government institutions (LGIs), 126–127
Long-run analysis, 202–203
  results of, 53
Long-run causality, 151
Long-run coefficients, 49
Long-run effects
  of ACGSF, 35–37
  of commercial bank's loan, 32–34
  of commercial banks' interest, 34–35
Long-run form and bound test, results of, 50–53

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), 166
Malnutrition, 193–194, 217
Market-related risks, 108–109
Marketing strategy, 96
Maximal eigenvalue statistics, 150–151
Mean group (MG), 199
Midday meal programs, anganwadi, and employment guarantee programs (MGNREGA), 168–169
Millennium development goals (MDGs), 192–193
Minimum Support Prices (MSPs), 12–14
Ministry of Disaster Management and Relief (MoDMR), 126
Mixed-methods approach, 7
Modified National Agricultural Insurance Scheme (MNAIS), 88
Moran's I, 231
Mukhya Mantri Kisan Kalyan Yojana, 19–21
Multi-peril crop insurance (MPCI), 80
Multidimensional food security index, 194
Multidimensional Poverty Index (MPI), 229
Multinomial logistic (m-logit) regression model, 230
Multivariate analysis of variance (MANOVA), 97

Multivariate generalized autoregressive conditional heteroscedasticity (MGARCH) model, 99–100
Multivariate regression analysis, 109–111

National Agricultural Disaster Fund (FNGCA), 85
National Agricultural Insurance Scheme (NAIS), 88
National Bank for Agriculture and Rural Development (NABARD), 13
National Bureau of Economic Research (NBER), 73
National Crop Insurance Program (NCIP), 88
National Disaster Management Council (NDMC), 126
National Food Security, 14
National Food Security Act 2013, 165
National Plan for Disaster Management (NPDM), 126
National System of Logistics Platforms (SNPL), 71
Natural pollinators, 43–44
Nature-based solutions (NBS), 83
Negusa Tengara Barat (NTB), 90
Neo-classical theory, 44–45
Nigeria, agriculture in, 27–28
Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL), 28
Nigerian government, 28
Non-food grains, 14–15
Non-poor, 235–237
Non-tariff obstacles, 68
Nongovernmental organizations (NGOs), 80–81, 185, 221
Normality tests, 49–50
Normalization of data, 195–198
Normalized difference vegetation index (NDVI), 80
North American Free Trade Agreements (NAFTA), 64
Nutrient cycling, 43–44
Nutrient retention, 44
Nutritional International, 185

Odisha, 228
  materials and methods, 228–229
  methodology, 229–231
  policy recommendations, 244–245
  regression results, 240–244
  results, 231–235
  sources of data, 229
  study area selection, 228–229
Old Aged Allowance, 126
Open Market Sale (OMS), 126, 134
Ordinary least squares (OLS) regression, 230–231
Organization for Economic Cooperation and Development (OECD), 45–46, 150, 183–184

Paddy production, 108
  data source, 111–112
  future scopes of study, 117
  gaps in literature, 111
  limitations of study, 117
  literature review, 109–111
  methodology, 112
  objectives of study, 111
  results, 112–115
Pakistan, 212–214
  domestic and international response, 215–216
  food crisis during COVID-19, 215
  policy recommendations, 221
  research objectives, research questions, and research methodology, 213
  results of the study, 220
  review of literature, 213
Panel ARDL, 198–199
Panel cointegration, 149
  estimated results of, 201–207
  tests, 198

Panel error correction result, 153–157
Panel unit root tests, 150
  estimated results of, 201
Paschim Medinipur district, 109
Pedroni approach test, 153
Pedroni cointegration test, 198–199
People's Insurance Company of China (PICC), 87
Per capita food availability, 165
Per capita monthly expenditure (MPCE), 235–237
  poverty and food insecurity based on, 240
Peril crop insurance, 80
Perspective Plan (2021), 126, 2041
Phillips Perron (PP) test statistic, 207
Pilot Crop Insurance Scheme (PCIS), 88
Pilot Scheme on Seed Crop Insurance (PSSCI), 88
Pisciculture, 13
PM Garib Kalyan Anna Yojana, 13–14
Policy crisis, 183
Pollinators, 43–44
Pooled mean group (PMG), 199
  estimated results of PMG regression, 201–202
Population displacement, 214
Post-liberalization period, 12–13
Potato (*Solanum tuberosum*), 94
Poverty, 4–5, 193
  and food insecurity based on MPCE, 240
  gap, 229
  terminology related to, 229–230
Pradhan Mantri Fasal Bima Yojana (PMFBY), 13–14, 88
Pradhan Mantri Garib Kalyan Yojana (PMGKY), 168–169
Pradhan Mantri Kisan Samman Nidhi (PMKISAN), 19–21
Price volatility, 93–94, 144
Primary data analysis, 235–240
Privatization, 12–13
Producer rice price indices relative to GDP deflator (RPGDPDef), 150
Producer support (PS), 150
Profitability, 96
Public Distribution System (PDS), 12, 165, 168–169, 230
Public model of crop insurance, 80
Public–private partnership (PPP) model, 80

Rabi crop, 94–95
Radimer/Cornell measures, 226
Regional disparity in food security in India, 207
Regional imbalance, 194
Regression results, 240–244
  of multinomial logit to analysis to examine poverty and food security, 242–244
Regular employees (RE), 237
Renegotiation of TMEC, 65
Renewable energy consumption (REC), 45–46
Research and development (R&D), 166–167
Restructured Weather Based Crop Insurance Schemes (RWBCIS), 13–14
Reuters Market Light (RMLb), 98
Revolutions, 12
Rice production in 1 tonnes (RPTT), 000, 150
Rice production in G-20 countries, 146–147
Rice production tonnes per hectare (RPTPH), 150
Rice productivity, 7
Rice-potato-jute sequence, 109–111
Risk mitigation schemes, 81
Risk tolerance of French farmers, 98–99
Risk-loving behaviour model, 99
Risky selection, 97

Rural markets, 100
Russia–Ukraine war, 144

Schwarz Information Criterion (SIC), 50
Secondary data analysis, 231–235
Seemingly Unrelated Regression, 169–171
Self-employed (SE), 237
Self-feeding, 13
Self-reliance, 212
Self-reported maximizers, 97
Serial correlation tests, 49–50
Short-run analysis, 203
  results of, 53–55
Short-run causality, 151
Short-run effects
  of ACGSF, 35–37
  of commercial bank's loan, 32–34
  of commercial banks' interest, 34–35
Short-run model, 32
Sidr cyclone, 128
Sinaloa, 64
Sindh, 216
Sira markets, 100
Social safety net programmes (SSNPs), 126
SOD 2019, 126
Soil conservation, 44
Spatial autocorrelation, 231
Special Economic Zones (SEZs), 168
Speed of adjustment, 49
Square food insecurity gap, 230
Square poverty gap, 229
Stability, 5, 108, 192
  analysis, 6–7
  results of stability test graph, 55
Standing Orders on Disaster (SOD), 126
State-specific panel regression in short run, 203–207
Stochastic Frontier Analysis (SFA), 15
Strong causality, 151
Structural Social Psychology Methodology, 97
Sustainable agriculture, 82
Sustainable agriculture, crop insurance towards, 82–84
Sustainable Development Goals (SDGs), 42, 184, 227–228
  SDG2, 192–193

t-score, 112
Taliban Regime, 218–219
"Target price" approach, 168–169
Tariff barriers, 68
Technical efficiency (TE), 15, 18–19
Technological advancements, 4
Theory of planned behaviour (TPB), 96–97
Time trend variance model, 99–100
TMEC, 64
Total factor productivity growth (TFPG), 109–111
Total Interpretive Structural Modelling (TISM), 168–169
Traditional indemnity-based system, 80
"Transitory" food insecurity, 164

Uncertainty, 6
Unemployment, 128
Union Council (UP), 129, 134
Union Parishad (UP), 134
Union Territory (UT), 89
Unit root test, results of, 50
United Nations Development Programme (UNDP), 127
United States Agency for International Development (USAID), 216
United States–Canada–Mexico (USCM) treaty, 6, 65
  agricultural exports, 65
  agricultural free trade, 67–68
  impact of agroeconomy sector of Sinaloa in Mexico, 65–66
  contextual framework of exports in, 68–69
  data analysis, 69–74

materials and methods, 69
research design, 69
research instrument, 69
research limitations, 73–74
results, 74–75
theoretical-empirical review of literature, 66–67
Upazila Executive Officer (UNO), 134
Utilization, 192

Value-added from agriculture, forestry and fishing (VA_AGR), 47
Values, 96
Vector autoregressive (VAR) equation, 151
Vector error correction model (VECM), 45–46, 49–50, 151–152
Vegetable exports and imports, Mexico-EU, 73
Vegetable King. *See* Potato (*Solanum tuberosum*)
Vulnerable Group Development (VGD), 126
Vulnerable Group Feeding (VGF), 126, 134

Wald tests, 32
Ward Committees (WC), 134
Weather Based Crop Insurance Scheme (WBCIS), 88
Weather index, 80
West Bengal, 94–95, 109, 111
World Bank (IBRD), 192
World Food Programme (WFP), 180–181
World Food Summit (WFS), 164
World rice price indices (RPWP), 150
World Trade Organization (WTO), 12–13

Yield index, 80
Yield rates, 4, 112

Z Score, 195