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# **Glimpse 2024**

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Bangladesh Institute of Governance and Management (BIGM)

## ***Glimpse 2024: An Anthology of BIGM Research Abstracts***

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# ABBREVIATIONS

ADB	: Asian Development Bank Institute
ARDL	: Autoregressive Distributed Lag
AUC	: Area Under the Curve
BDHS	: Bangladesh Demographic and Health Survey
BIGM	: Bangladesh Institute of Governance and Management
BLR	: Binary Logistic Regression
BMI	: Body Mass Index
BoT	: Board of Trustees
BRI	: Belt and Road Initiative
CC	: Community Clinic
CCR	: Canonical Cointegration Regression
CIWB	: Carbon Intensity of Wellbeing
CNN	: Convolution Neural Network
CS-ARDL	: Cross-sectionally Augmented Autoregressive Distributed Lag
CSR	: Corporate Social Responsibility
DARDL	: Dynamic ARDL
DOLS	: Dynamic Ordinary Least Square
DSE	: Dhaka Stock Exchange
DT	: Decision Tree
ECD	: Early Childhood Development
ECDI	: Early Childhood Developmental Index
EHF	: Effective Handwashing Facilities
EKC	: Environmental Kuznets Curve
EMA	: Environmental Management Accounting
EPI	: Expanded Programme on Immunization
ESCI	: Emerging Sources Citation Index
ESG	: Environmental, Social, and Governance
EV	: Electric Vehicles
FDA	: Foreign Development Assistance
FDI	: Foreign Direct Investment
FMOLS	: Fully Modified Ordinary Least Squares
FSM	: Faecal Sludge Management
FY	: Five-Year
GARCH	: Generalized Autoregressive Conditional Heteroscedasticity
GB	: Governing Body
GDP	: Gross Domestic Product
GHGs	: Greenhouse Gases
GLS	: Generalized Least Squares
GMM	: Generalized Method of Moments
IAA	: Innovative Accounting Approach
ICC	: International Chamber of Commerce



ICSS	: Iterated Cumulative Sum of Squares
IPV	: Inactivated Polio Vaccine
IRF	: Impulse Response Function
J-Gate	: Journal Gate
KNN	: K-nearest Neighbour
LR	: Logistic Regression
MEP	: Macroeconomic Policy
ML	: Machine Learning
MLP	: Multilayer Perceptron
NAHS	: National Adolescent Health Strategy
NB	: Naïve Bayes
NTLI	: Night-Time Light Intensity
OSS	: On-Site Sanitation Systems
PCEC	: Per Capita Electricity Consumption
PCGNI	: Per Capita Gross National Income
PCV-10	: Pneumococcal 10-valent Conjugate Vaccine
PESTLE	: Political, Economic, Social, Technological, Legal, and Environmental
PLS-SEM	: Partial Least Squares Structural Equation Modeling
PPM	: Preference Pattern Mining PSM Propensity Score Matching PTS Political Terror Scale PV Photovoltaics (PV)
QANC	: Quality Antenatal Care
RF	: Random Forest
ROC	: Receiver Operating Characteristic
SARIMA	: Seasonal Autoregressive Integrated Moving Average
SCI	: Science Citation Index
SEM	: Structural Equation Modelling
SGMM	: System Generalized Methods of Moments
SJR	: Scimago Journal Rank
SMOTE-NC	: Synthetic Minority Over-sampling Technique Nominal Continuous
SOR	: Stimulus-Organism-Response
SSCI	: Social Sciences Citation Index
STIRPAT	: Stochastic Impacts by Regression on Population, Affluence and Technology
SVM	: Support Vector Machine
TFP	: Total Factor Productivity
TY	: Toda -Yamamoto
VAR	: Vector Autoregressive
VDC	: Variance Decomposition
VECM	: Vector Error Correction Model
WHO	: World Health Organization

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# PREFACE

The Bangladesh Institute of Governance and Management (BIGM) is a leading knowledge centre in the country, committed to enhancing education, research, and training in public policy, governance, and development. The institute aims to establish itself as a premier knowledge centre, significantly enhancing the development process to benefit the nation and its citizens. It aims to enhance knowledge, refine skills, develop insights and critical thinking abilities among young and mid-career workers in both the public and private sectors. BIGM seeks to cultivate commitment and strategic policy leadership among Bangladesh's future leaders through its postgraduate professional education, rigorous research, and high-quality training programs.

Research constitutes a fundamental activity of BIGM. The institute's primary research emphasis was on the nation's macroeconomic challenges. The focus has broadened beyond economic and social themes to encompass a diverse array of multidimensional and interdisciplinary subjects, now addressing priority and emergent matters in public policy, governance, and development, mirroring the changing requirements and the nation's policy environment. Since 2017, BIGM researchers have written 102 articles (99 in peer-reviewed indexed journals and 3 as book chapters), with 11 articles accepted for publication and 21 under review. Additionally, 22 research papers have been submitted to multiple academic journals. Researchers consistently showcase their work at in-house seminars and participate in national and international conferences and workshops.

BIGM is not just about research, it's about fostering a community of like-minded individuals. The institute constantly adapts its research goals to address evolving challenges and opportunities, leveraging its growing network of joint and collaborative research in the public sector. This includes domestic and global partnerships with academic institutions, research centres, and think tanks. The institute's commitment to enhancing its proficiency, disseminating resources, and engaging in a wider dialogue on public policy, governance, and sustainable development is evident in the establishment of 'ReForm,' an online platform that effectively connects research enthusiasts both domestically and internationally.

The '**Research Glimpse 2024**' is not just a publication; it's a testament to BIGM's commitment to research, innovation, and reform. This biennial compilation features abstracts from research articles authored by BIGM researchers, published in several worldwide double-anonymized peer-reviewed indexed journals since 2017. The collection includes the abstracts, the names of the journals, the categories of the articles, and the publication histories of the scholars. For the first time, this issue includes author biographies, further highlighting the institute's dedication to fostering a culture of excellence in public policy. As BIGM continues to evolve, these principles will remain integral to its purpose in the future



September 2024

Mohammad Tareque, PhD





# **POLICY AND GOVERNANCE**



# External Debt and Growth: Role of Stable Macroeconomic Policies

Sima Rani Dey <sup>1</sup>, Mohammad Tareque <sup>1</sup>

## ABSTRACT

**Purpose:** This study aims to examine the impact of external debt on economic growth in Bangladesh within a broader macroeconomic scenario. **Design/methodology/approach:** In the process of doing so, it assesses the empirical cointegration, long-run and short-run dynamics of the concerned variables for the period of 1980–2017 applying the autoregressive distributed lag (ARDL) bounds testing approach to cointegration. First, debt-gross domestic product linkage explores the impact of external debt impact on economic growth using a set of macro and country risk variables, and then this linkage is also analyzed along with a newly formed macroeconomic policy (MEP) variable using principal component analysis. **Findings:** The study results reveal the negative impact of external debt on GDP growth, but the larger positive impact of MEP index indicates that this adverse effect of debt can be mitigated or even nullified by sound MEP and appropriate human resource policy. **Originality/value:** The dynamic effects of different shocks (external debt and macro policy variable) on economic growth by vector autoregression impulse response function also confirm our ARDL findings.

**Keywords:** External debt, Economic growth, Macroeconomic policy, ARDL

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<sup>1</sup> Bangladesh Institute of Governance and Management (BIGM), Dhaka, Bangladesh

# The Role of Think Tanks in Social Policy-Making: The Bangladesh Perspective

Md. Monirul Islam <sup>1</sup>

## ABSTRACT

Think tanks uphold up-to-date policies through evidence-based research, the exchange of views and ideas among multifarious stakeholders, and civic activism in most of the countries of the world. Historically, the formation of the Clarkson's Committee in the US is regarded as the first think tank, which focused its efforts against the African Slave Trade in 1782. Now, in many countries of the world, especially in Bangladesh with different nomenclatures, these think tanks are playing a crucial role in different affairs of the state and society. The prime focus of this study is to examine the role of think tanks in social aspects, such as with health, education, gender, poverty, and the environment. Based on secondary data and information derived from literature reviews, the author quite strongly argues that the think tanks of Bangladesh are playing a very positive role in social policy making through research, dialogue, programs, projects, and civic activism. However, it has also been found that Bangladesh's think tanks have witnessed some gaps in terms of performance in comparison to global think tanks when playing a role in the policy-relevant issues. Hence, some recommendations have been made to improve the roles of think tanks in Bangladesh.

**Keywords:** Think Tank, Role, Policy, Social Policy-Making, Bangladesh Entrepreneur

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<sup>1</sup> Bangladesh Institute of Governance and Management (BIGM), Dhaka, Bangladesh

# Rise and Trend of Think Tanks: A Policy Relevant Perspective

Md. Monirul Islam <sup>1</sup>

## ABSTRACT

Idea comes from think tanks. And the policy relevant idea that does not exclusively come from other source but think tanks to play an important role in the policy- making process of a country. From this point of view, the notion of think tank has significantly been the magnetic phenomenon to the policy makers, statesmen, administrators, donor agencies, civil society, and other stakeholders. In this backdrop, the study mainly aims to look into the rise and trend of think tanks in different countries, such as US, China, India and Bangladesh, and identify the potentials of global think tanks to exploit these into the policy-making process of Bangladesh. Based on the secondary data, the study is carried out following the content analysis method to reach the study objective. The study argues that the rise of think tanks worldwide is time-necessitated and their current trend in policy-making process is enormously traced out with their rigorous potentials. Therefore, Bangladesh as a developing country can exploit the potentials of think tanks into its policy-making process as followed by the global think tanks.

**Keywords:** Think tanks, Rise, Trend, Policy, Policy-making.

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# Does Higher Tax Rate Affect Tobacco Usage? Unravelling the Nexus Between Tobacco Regulatory Control and Public Health Concern

Md. Mominur Rahman <sup>1</sup>, Bishawjit Chandra Deb <sup>2</sup>, Md. Jahid Hasan <sup>3</sup>, Md. Mahabubul Alam <sup>4</sup>, Tahmina Begum <sup>5</sup>, H.M. Miraz Mahmud <sup>5</sup>, Mohammad Shamimul Islam <sup>5</sup>, Muhammad Shajib Rahman <sup>2</sup>

## ABSTRACT

**Objectives:** Bangladesh stands as a prominent global consumer of tobacco, with alarming consequences on public health. The Global Adult Tobacco Survey reported that tobacco consumption claimed over 126 000 lives in 2018, contributing to 13.5% of all deaths in the country. This study aims to explore the effectiveness of higher tax rates and tobacco use regulation as control mechanisms in mitigating tobacco consumption and health care cost burden, with a particular emphasis on its implications for public health. **Methods:** This study is based on the annual time series data over the period 2000–2020. The study employs the ordinary least square method to analyze the quantitative confirming the stationarity of data at level. This research uses different models to investigate individual effects and combined effects on both tobacco consumption and tobacco health care cost burden. **Results:** The study finds a negative relationship between tobacco tax rate and tobacco consumption. More specifically, the higher tax rate of tobacco (low ( $\beta = -0.3495$ ), medium ( $\beta = -0.2319$ ), high ( $\beta = -0.9033$ ), premium ( $\beta = -0.7322$ ), filtered ( $\beta = -0.2114$ ), and non-filtered ( $\beta = -0.3452$ ) categories) is significant to reduce tobacco use at 1% level of significance. The study finds similar results when it applied tobacco retail price instead of tobacco tax rate as the independent variable. Finally, the study investigates the impact on health care cost through tobacco consumption, tobacco control law, growth rate, export-import, and tobacco production. The results indicate that tobacco consumption, export-import, and tobacco production increases health care cost burden while tobacco use regulatory decreases it. By reducing tobacco consumption, higher taxes and tobacco use regulation contribute to alleviating the burden on the healthcare system, promoting healthier lifestyles, and aligning with global health objectives. **Conclusions:** Higher tax rate on tobacco products is necessary to increase the retail price so that tobacco users cannot consume tobacco. Specific tax and uniform tax base are needed so that tobacco users cannot switch to lower priced brands. Tobacco control laws need to revised and proper implementation should be ensured as well, to achieve the goal of tobacco free Bangladesh by 2040. Tobacco-related diseases, responsible for a significant proportion of deaths in the country, could witness a considerable decline with the successful implementation of higher tax rates and tobacco use regulation. This study provides insights that not only contribute to the economic discourse but also accentuate the broader public health benefits arising from effective tobacco taxation policies.

**Keywords:** Tobacco tax, Taxation, Tobacco use, Public health, Tobacco control, Health care cost.

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# Public Sector Innovation Outcome-Driven Sustainable Development in Bangladesh: Applying the Dynamic Autoregressive Distributed Lag Simulations and Kernel-Based Regularised Least Square Machine Learning Algorithm Approaches

Md. Monirul Islam <sup>1, 2</sup>, Mohammad Tareque <sup>2</sup>

## ABSTRACT

This research investigates the role of public sector innovation outcomes, e.g. trademark innovation, information and communication technology (ICT), renewable energy, and governance, in the sustainable development of Bangladesh during 1980–2019. Utilising the dynamic autoregressive distributed lag (DARDL) simulation approach, this study divulges a favourable long-term influencing profile of public sector innovation outcomes, i.e. trademark innovation, ICT, and renewable energy on sustainable development, while governance has a heterogeneous impact. Besides, the findings from the DARDL simulations area plots display 10% counterfactual shocks to the public sector innovation outcomes on sustainable development. Furthermore, the Kernel-based regularised least square machine learning algorithm approach used in the study examines the marginal effects of the public sector innovation outcomes on sustainable development for robust findings. Therefore, the policy suggestions are solely concerned with the public sector's adoption of more innovation dynamics through appropriate policy formulation.

**Keywords:** Bangladesh, governance, ICT, public sector innovation outcome, renewable energy, trademark innovation

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# Policy Options for Increasing Utilization of Community Clinic Services in Rural Bangladesh: A Policy Paper

Tahmina Sultana <sup>1</sup>

## ABSTRACT

This paper aims to identify the problems of Community Clinic (CC) services in rural Bangladesh and to provide some policy options to increase the utilization. Here qualitative methods have been used, including document review, observation, fact check and key informant interviews with policy elites. Among those, the option relating to the absenteeism of health care providers at CC, scored the highest total value of 2.7 in multi criteria analysis as well as viable in PESTLE analysis. Therefore, the recommended option is introduction of biometric system at the CCs. This system is necessary in the CCs to ensure timely presence of the service providers to promote quality and safety in health care towards healthy communities. This system will also assist in implementing the plan of Digital Bangladesh by directly connecting the CCs with the main server of Management Information System of Directorate General of Health Services.

**Keywords:** E-monitoring, multi criteria analysis, health workers, biometric system

Journal Category and Indexed: ERIH PLUS - European Reference Index for the Humanities and Social Sciences

Journal with Publisher Name: International Journal of New Economic and Social Science, Published by Academy of Justice in Warsaw.

To be cited:

Sultana, T. (2021). Policy Options for Increasing Utilization of Community Clinic Services in Rural Bangladesh: A Policy Paper, International Journal of New Economics and Social Sciences, 13(1), 73-89, <https://doi.org/10.5604/01.3001.0015.2285>.

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# Bangladesh National Adolescent Health Strategies, A Step to Achieve Sustainable Development Goals: A Policy Analysis and Legal Basis

Tahmina Sultana <sup>1</sup>, Mohammad Tareque <sup>2</sup>

## ABSTRACT

This paper aims to critically assess the adolescent focused policies and plans of Bangladesh of the last two decades. Another aim of this article is to check how the latest National Adolescent Health Strategy (NAHS) is compatible with the global strategy and to suggest some ways to achieve Sustainable Development Goals by 2030 using policy analysis triangle framework. Authors reviewed all relevant policy documents introduced by the Government of Bangladesh during 1998-2017. This framework allows the analysis of the contextual factors that influenced the policy, the process and the entities involved in the decision making. Findings suggest Bangladesh strategy is comprehensive and aligned with global strategies but only regarding the key strategies. Thus, identifying key activities including implementation and monitoring plan with a specific timeline is the urgently required. A tentative Plan of Action has been proposed and it is expected that the policy community will be benefitted to take their future actions to implement the strategy successfully.

**Keywords:** Adolescent health, health policy, mental health, policy triangle framework, policy analysis, sustainable development goals

Journal with Publisher Name: International Journal of Legal Studies, Published by International Institute of Innovation in Warsaw.

To be cited:

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<https://doi.org/10.5604/01.3001.0013.3232>.

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## **GROWTH, INVESTMENT AND HUMAN CAPITAL**



# Endogenous Growth Model of a Labour Abundant and Land Scarce Economy

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Mrittika Shamsuddin <sup>3</sup>, Mohammad Tareque <sup>2</sup>

## ABSTRACT

The study contributes towards modeling and estimating an endogenous growth model of an economy burgeoning with young working population and declining agricultural land. The models explore the long run impact of physical capital stock, human capital augmented labor and production index augmented agricultural land on Gross Domestic Product of Bangladesh. Theoretically and empirically the models indicate that per capita income will be rising as long as the growth and share of human capital and the growth of agricultural productivity outweigh the dragging effect of the growth of declining agricultural land and the population growth. Vector Error Correction Model (VECM), Auto Regressive Distributive Lag (ARDL) and Dynamic Ordinary Least Square (DOLS) techniques are employed to observe the robustness of the results. The underlying production relations exhibit constant returns to scale. DOLS estimates are found more robust and significant as compared to the results in ARDL. Agricultural productivity and human capital are found as very crucial determinants of growth. Government should give more focus on creating human capital through higher spending on education and to take necessary measures to increase the utilization rate of scarce agricultural land. Formulation of land zoning policy and land reclamation policy may be instrumental for effective use and protection of declining agricultural land and adverse environmental impacts.

**Keywords:** GDP growth, augmented labour, augmented agricultural land, caved model.

Journal Category and Indexed: SJR: Q2 and Indexed in Scopus, ABDC

Journal with Publisher Name: Journal of Social and Economic Development, Published by Springer Nature.

To be cited:

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# Relative Impact of Fiscal and Monetary Policies on Bangladesh Economy: A Comprehensive Approach

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## ABSTRACT

For developing countries like Bangladesh, understanding the relative impact of monetary and fiscal policies on GDP growth is crucial to formulate growth-enhancing policy decisions. This paper inspects into the relative effectiveness of these two policies on the real GDP growth of Bangladesh using ARDL, VECM and VAR estimation techniques to ensure comprehensiveness. From the results of all the three estimation techniques, it is seen that in the long run only fiscal policy has positive influence on growth while monetary policy stays either statistically insignificant or negative. In the short run, however, the results from the different estimation techniques are not much consistent. Here, ARDL technique shows that both money supply and government expenditure has statistically significant and positive effect on GDP while VAR-based Variance decomposition (VDC) and Impulse Response Functions (IRFs) state that only government expenditure has positive impact in the short run. In contrast, VECM technique reveals that neither money supply nor government expenditure has statistically significant impact in the short run. As from the results, it is apparent that government expenditure helps generating growth in the long run, it should be raised which may necessitate raising more government revenue. And, the main goal of monetary policy should be ensuring stability of the economy.

**Keywords:** Fiscal Policy, Monetary policy, GDP growth, ARDL, VECM, VAR

Journal with Publisher Name: BIGM Journal of Policy Analysis, Published by BIGM

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Email: ahs.2610@gmail.com (Corresponding author)

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# Investigating the Roles of Physical Infrastructure, Financial Development and Human Capital on Economic Growth in Bangladesh

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## ABSTRACT

This article investigates the dynamic relationship among physical infrastructure, financial development, human capital and economic growth in Bangladesh, employing Autoregressive Distributed Lag (ARDL) bound co-integration and Granger causality test for the period 1985–2019. The study finds a significantly positive long-term impact of physical infrastructure and human capital on economic growth. However, the effect of financial development on growth is found to be negative, and the result suggests that financial development will take place with economic growth. From the policy perspective, this study emphasizes increasing investment in physical infrastructure and human capital for Bangladesh to foster long-term economic growth.

**Keywords:** Air quality, Bangladesh, Air pollution, SARIMA model, Time series modeling

Journal Category and Indexed: Indexed in EBSCO, J-Gate, Research Papers in Economics (RePEc)

Journal with Publisher Name: Journal of Infrastructure Development, Published by Sage.

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Ahmed, F., Hossain, Md. J., & Tareque, M. (2020). Investigating the Roles of Physical Infrastructure, Financial Development and Human Capital on Economic Growth in Bangladesh, *Journal of Infrastructure Development*, 12(2), 154-175.

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Paper Link: <https://journals.sagepub.com/doi/abs/10.1177/0974930620961479>

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# Economic Growth and Environmental Pollution Nexus in Bangladesh: Revisiting the Environmental Kuznets Curve Hypothesis

Md. Monirul Islam <sup>1, 2</sup>, Md. Mahmudul Alam <sup>3</sup>,  
Faroque Ahmed <sup>1</sup>, Abul Quasem Al-Amin <sup>4</sup>

## ABSTRACT

The paper reports a re-examination of the environmental Kuznets curve (EKC) hypothesis for Bangladesh; considering economic growth and greenhouse gas (GHG) emissions (such as CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O). The autoregressive distributive lag (ARDL) model and VAR-based innovative accounting approach (IAA) with the combination of Variance Decomposition and Impulse Response Function are used to check cointegration among the variables using data from 1976 to 2014. This approach is specifically employed for variance analysis in order to measure causal association and regressors' shock to dependent variables. The EKC hypothesis is not supported because there is a positive association between economic growth and pollutants (CO<sub>2</sub> and CH<sub>4</sub> emissions) over time. However, the EKC is valid for N<sub>2</sub>O emissions. IAA causal analysis reveals a bilateral causative relationship between GDP and CO<sub>2</sub> emissions, as well as a unilateral causal relationship between CH<sub>4</sub> emissions and GDP. Trade liberalisation, urbanisation, and financial liberalisation do not necessarily improve or save the natural environment. Bangladesh needs to use renewable energies and cut GHG emissions by abandoning fossil fuels.

**Keywords:** Growth, EKC, GHG emissions, pollution, Bangladesh

Journal Category and Indexed: SJR: Q3, Indexed in Scopus

Journal with Publisher Name: International Journal of Environmental Studies, Published by Taylor & Francis.

To be cited:

Islam, M., Alam, M., Ahmed, F., & Al-Amin, A. Q. (2023). Economic Growth and Environmental Pollution Nexus in Bangladesh: Revisiting the Environmental Kuznets Curve Hypothesis. *International Journal of Environmental Studies*, 80(1), 68-92. <https://doi.org/10.1080/00207233.2021.2017169>

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# Twin Deficits Hypothesis in Bangladesh: An Empirical Investigation

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## ABSTRACT

**Purpose:** This study attempts to examine the twin deficits hypothesis for Bangladesh. Along with the traditional twin deficits hypothesis associated with the current account and fiscal deficit, the paper also explores the causal relationship between the trade deficit and fiscal deficit. **Design/methodology/approach:** We start with the investigation of the conventional twin deficit hypothesis employing autoregressive distributed lag (ARDL) bounds testing approach in a multivariate framework. Due to the absence of cointegration between the budget deficit and trade deficit, the study adopts a multivariate vector autoregressive (VAR) model to analyze the nexus. **Findings:** The study supports the presence of the twin deficits hypothesis in Bangladesh, both in the short run and long run. Unidirectional causation running from the budget deficit to the current account deficit in the long run. The trade model also supports the twin deficit hypothesis, like the aforementioned current account model. **Practical implications:** Therefore, the sustainable fiscal deficit is the key to maintain a stable current account deficit and trade deficit in Bangladesh. **Originality/value:** The study incorporates the country risk indicators to address the governance issue while analyzing the models' deficit scenarios because good governance is an integral part of explaining the development outcome and failure of a country like Bangladesh.

**Keywords:** Current account deficit, Trade deficit, Twin deficits, VAR, Granger Causality

Journal Category and Indexed: SJR: Q2 and Indexed in Social Sciences Citation Index (SSCI)

Journal with Publisher Name: International Journal of Emerging Markets, Published by Emerald Publishing Limited

To be cited:

Dey, S. R., & Tareque, M. (2022). Twin Deficits Hypothesis in Bangladesh: An Empirical Investigation. *Journal of Emerging Markets*, 17(9), 2350-2379.

<https://doi.org/10.1108/IJOEM-06-2020-0628>

Paper Link: <https://www.emerald.com/insight/content/doi/10.1108/ijoem-06-2020-0628/pdf?title=twin-deficits-hypothesis-in-bangladesh-an-empirical-investigation>

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# **Aggregate Consumption Expenditure and Economic Growth: Evidence from Bangladesh**

Sima Rani Dey <sup>1</sup>, Mohammad Tareque <sup>1</sup>

## **ABSTRACT**

This paper attempts to investigate the relationship between aggregate consumption expenditure and economic growth of Bangladesh using the ARDL Bounds Test approach. The study reveals that consumption expenditure and GDP have a significant impact on each other. Granger non-causality test also has been carried out, and the test reveals that unidirectional causal relationship is running from aggregate consumption expenditure to GDP. Bilateral causality exists between GDP and capital investment. The findings suggest that consumption enhancing fiscal and monetary policies can also boost the economic growth in the context of Bangladesh. That's because Bangladesh is still operating on the relatively flatter part of its long run supply curve.

Journal with Publisher Name: Global Journal of Management and Business Research, Published by Global Journals.

To be cited:

Dey, S. R., & Tareque, M. (2018). Aggregate Consumption Expenditure and Economic Growth: Evidence from Bangladesh. Global Journal of Management and Business Research, 18(5B).

Paper Link: <https://www.researchgate.net/publication/327231185>

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# **The Relationship between Income, Consumption and GDP of Asian Countries: A Panel Analysis**

Sima Rani Dey <sup>1</sup>

## **ABSTRACT**

This paper attempts to scrutinize the co-integration relationship between consumption, income and GDP per capita in panel data series. We have applied unit root test, co-integration test and FMOLS estimation technique to analyze the data. Data covers 11 Asian countries of three income categories– lower middle income, upper middle income and high income. The study contemplated the annual observations of 35 years from 1980 to 2014. Study revealed that the association between consumption and income is stronger in lower and upper middle income countries. The low level of income determines its maximum use predominantly for consumption. The relation between consumption, income and GDP per capita is stronger for lower middle income countries; thereby the countries with higher income generally tend to make big investments.

**Keywords:** Income, Consumption, GDP, Panel unit roots, Panel cointegration

Journal with Publisher Name: Managing Global Transitions, Published by University of Primorska, (Slovenia)

To be cited:

Dey, S. R. (2019). The Relationship between Income, Consumption and GDP of Asian Countries: A Panel Analysis. *Managing Global Transitions: International Research Journal*, 17(2). <https://10.26493/1854-6935.17.113-127>

Paper Link: <https://www.researchgate.net/publication/343610239>

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# Promoting Sustainable Development through Realizing the Demographic Dividend Opportunity in the Digital Economy: A Case Study of Nepal

Tapan Sarker <sup>1</sup>, Shristi Tandukar <sup>2</sup>, Sima Rani Dey <sup>3</sup>

## ABSTRACT

This paper reports the links between demographic dividend, digital economy, and sustainable development in the context of Nepal. Nepal is one of the countries that has been undergoing a remarkable demographic transition in South Asia in the last few decades, which provides it with the “window of opportunity” for sustainable development. In this regard, an appropriate study in this sector is indispensable to capture the optimum advantage of demographic dividend with the emerging techno-economic paradigm administering the dimensions of sustainability. By using multiple regressions, we analyze the economic variables of demographic dividend as the dependent variable, with the indicators of the digital economy being telecommunication and internet access as independent variables, and for the environment-related issues, greenhouse gas emissions and urbanization as explanatory variables, to understand the convoluted relationship of the influence of demographic dividend on the digital economy. The study provides a decisive rationale for the prospective policy implications necessary to grasp the advantage of demographic dividend by examining the potentials of the digital economy, exploring the environmental dimension that is currently regarded as one of the global issues in the economy. Policy implications and the impact of COVID-19 have also been discussed. The outcome of the research provides a road map for attaining the Sustainable Development Goals for Nepal. The findings and lessons learned will also assist policymakers and future researchers with similar scopes that can strengthen the economy of countries, but not limited to the least developed countries.

**Keywords:** demographic dividend, digitalization, environment sustainability, economy, Nepal

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To be cited:

Sarker, T., Tandukar, S., & Dey, S. R. (2021). Promoting Sustainable Development through Realizing the Demographic Dividend Opportunity in the Digital Economy: A Case Study of Nepal (No. 1225). ADBI Working Paper Series.

Paper Link: <https://www.econstor.eu/handle/10419/238582>

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# Does Infrastructural Development Allure Foreign Direct Investment? The Role of Belt and Road Initiatives

Faheem Ur Rehman <sup>1, 2</sup>, Md. Monirul Islam <sup>3, 4</sup>, Kazi Sohag <sup>5</sup>

## ABSTRACT

**Purpose:** China's Belt and Road Initiative (BRI) is the most ambitious investment strategy for infrastructural development belonging to the significant potential for stimulating regional economic growth in Asia, Europe and Africa. This study aims to investigate the impact of infrastructure on spurring inward foreign direct investment (FDI) within the purview of human capital, GDP per capita, foreign aid, trade, domestic investment, population and institutional quality in BRI countries. **Design/methodology/approach:** In doing so, the authors analyze panel data from 2000 to 2019 within the framework of the system generalized method of movement (GMM) approach for 66 BRI countries from Europe, Asia, Africa and the Middle East. **Findings:** The investigated results demonstrate that aggregate and disaggregate infrastructure indices, e.g. transport, telecommunications, financial and energy infrastructures, are the driving forces in attracting foreign direct investment (FDI) in the BRI countries. In addition, control variables (i.e. institutional quality, human capital, trade, domestic investment, foreign aid and GDP per capita) play an essential role in spurring FDI inflows. **Originality/value:** The authors' study uniquely investigates both the pre- (2000–2012) and post- (2013–2019) BRI scenarios using the aggregate and disaggregate infrastructural components from the perspectives of full and clustered sample regions, such as Asia, Europe, Africa and the Middle East. The study provides several policy implications.

**Keywords:** Infrastructure, FDI, GMM, Belt and Road initiative countries

Journal Category and Indexed: SJR: Q2 and Indexed in Social Sciences Citation Index (SSCI).

Journal with Publisher Name: International Journal of Emerging Markets, Published by Emerald

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Rehman, F. U., Islam, M. M., & Sohag, K. (2022). Does Infrastructural Development Allure Foreign Direct Investment? The Role of Belt and Road Initiatives. *International Journal of Emerging Markets*, 19(4), 1026-1050.

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# Financial Infrastructure—Total Factor Productivity (TFP) Nexus within the Purview of FDI Outflow, Trade Openness, Innovation, Human Capital and Institutional Quality: Evidence from BRICS Economies

Faheem Ur Rehman <sup>1, 2</sup>, Md Monirul Islam <sup>1, 3</sup>

## ABSTRACT

BRICS countries' contribution to the global economy has received wider attention. The critical factor behind their role is financial market reform that stimulates these economies' productivity growth. This research contributes to constructing a comprehensive index of financial infrastructure and measuring its relationship with BRICS economies' total factor productivity (TFP) within the purview of outward FDI, trade openness, human capital, innovation and institutional quality during 1990–2019 using the CS-ARDL technique. The findings divulge a significant and positive role of financial infrastructure in TFP both in the long and short runs, while outward FDI, trade openness, human capital, and innovation walk on the same footing in BRICS countries. Moreover, the CS-ARDL-based investigated findings remain the same across the two-way fixed effect with Driscoll and Kraay Standard Error technique. Therefore, BRICS countries' more promotion of financial dynamics and other ancillary economic, demographic, and technological factors is critical to stepping towards the spectacular growth trajectory.

**Keywords:** Financial infrastructure financial stability, Total factor productivity CS-ARDL, BRICS

Journal Category and Indexed: SJR: Q2 and Indexed in Social Sciences Citation Index (SSCI)

Journal with Publisher Name: Applied Economics, Published by Taylor and Francis

To be cited:

Rehman, F. U., & Islam, M. M. (2023). Financial Infrastructure—Total Factor Productivity (TFP) Nexus within the Purview of FDI Outflow, Trade Openness, Innovation, Human Capital and Institutional Quality: Evidence from BRICS Economies. *Applied Economics*, 55(7), 783-801. <https://doi.org/10.1080/00036846.2022.2094333>

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# Exploring the Linkage between Human Capital and Economic Growth: A Look at 141 Developing and Developed Countries

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## ABSTRACT

As a factor of production, human capital is defined both in its health and educational dimensions, incorporating qualitative and quantitative aspects. Using a panel of 141 countries (93 developing and 48 developed), we attempt to explore and compare the impact of human capital on economic growth at different development stages. For our estimation, we employ the System Generalized Methods of Moments (SGMM) for the period 1980–2008. Our findings reveal that all aspects of human capital positively influence growth in developing countries, especially life expectancy gain, which may be explained by the demographic transition these countries are going through. However, the scenario is different for developed countries, where increased life expectancy posits a drag on economic growth, probably because of the increasingly aging population and dependency ratio. Only when life expectancy is omitted does health expenditure, along with other educational measures of human capital, help sustain growth in developed countries.

**Keywords:** Human capital, Qualitative, Quantitative, Economic growth, Developing, Developed

Journal Category and Indexed: SJR: Q2 and Indexed in Social Sciences Citation Index (SSCI).

Journal with Publisher Name: Economic Systems, Published by ELSEVIER

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Sultana, T., Dey, S. R., & Tareque, M. (2022). Exploring the Linkage between Human Capital and Economic Growth: A Look at 141 Developing and Developed Countries. *Economic Systems*, 46(3), 101017. <https://doi.org/10.1016/j.ecosys.2022.101017>

Paper Link: <https://www.sciencedirect.com/science/article/abs/pii/S0939362522000796>

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# Do the Inward and Outward Foreign Direct Investments Spur Domestic Investment in Bangladesh? A Counterfactual Analysis

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Md. Mahmudul Alam <sup>4,5</sup>, Kazi Sohag <sup>1</sup>

## ABSTRACT

The net contribution of the decomposed measures of foreign direct investment (FDIs), e.g., the inward and outward flows of FDIs, to domestic investment is still inconclusive in the case of underdeveloped and developing countries. The current literature bears testimony to this fact. Hence, this research examines the impact of inward and outward foreign direct investments (FDIs) on the domestic investment in Bangladesh. This study considers annual time series data from 1976 to 2019 and estimates this data property under the augmented ARDL approach to cointegration. In addition, this research employs the dynamic ARDL simulation technique in order to forecast the counterfactual shock of the regressors and their effects on the dependent variable. The results from the augmented ARDL method suggest that the inward FDI has a positive impact on domestic investment, while the outward FDI is inconsequential in both the long run and the short run. Besides, our estimated findings also show the economic growth's long-run and short-run favorable effects on domestic investment. At the same time, there is no significant impact of real interest rates and institutional quality on domestic investment in the long run or the short run in Bangladesh. In addition, the counterfactual shocks (10% positive and negative) to inward FDI positively impact domestic investment, indicating the crowding-in effect of the inward FDI on the domestic investment in Bangladesh. As the inward FDI flow is a significant determinant for sustained domestic investment in Bangladesh, the policy strategy must fuel the local firms by utilizing cross-border investment.

**Keywords:** Domestic investment, FDI inflow, FDI outflow, institutional quality, augmented ARDL model, dynamic ARDL simulations approach, Bangladesh

Journal Category and Indexed: SJR: Q3 Journal with Publisher Name: Journal of Risk and Financial Management, Published by Multidisciplinary Digital Publishing Institute (MDPI)

To be cited:

Islam, M. M., Tareque, M., Wahid, A. N., Alam, M. M., & Sohag, K. (2022). Do the Inward and Outward Foreign Direct Investments Spur Domestic Investment in Bangladesh? A Counterfactual Analysis. *Journal of Risk and Financial Management*, 15(12), 603. <https://doi.org/10.3390/jrfm15120603>

Paper Link: <https://www.mdpi.com/1911-8074/15/12/603>

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# The Impact of Migrant Remittances on Poverty Reduction in Bangladesh

Sima Rani Dey <sup>1, 2</sup>, Bishwajit Basak <sup>3, 4</sup>

## ABSTRACT

This study aims to assess the impact of international remittances on poverty alleviation in Bangladeshi migrant families using household surveys. A Multi-Stage Stratified Random Sampling approach was employed to collect data from four upazilas of the Tangail and Comilla districts. The propensity score matching (PSM) method has been applied to evaluate the impact of returnee workers' remittances on household economic welfare that ensures poverty alleviation. The average treatment effect in the treated (ATT) outcomes of the PSM technique demonstrates that the land asset, income, and expenditure scenario of migrant households has improved significantly compared to non-migrants, indicating a notable reduction in poverty. Moreover, international remittances also improved savings and investment status substantially, along with wealth accrual and land possession. Hence, international remittances proved to be a boon for migrant families as remittances drove returnee households towards low poverty in Bangladesh. Intervention programs of financial literacy (including digital banking) for safe money transfer and secured bank loans at low interest for migration costs are required to maintain remittance inflows and sustainable reduction in poverty.

**Keywords:** International remittances, household, poverty, PSM, Bangladesh

Journal Category and Indexed: SJR: Q1 and Indexed in Emerging Sources Citation Index (ESCI)

Journal with Publisher Name: Poverty & Public Policy, Published by Wiley.

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Dey, S. R., & Basak, B. (2024). The Impact of Migrant Remittances on Poverty Reduction in Bangladesh, *Poverty & Public Policy*, 16(3), 253-272, <https://doi.org/10.1002/pop4.411>

Paper Link: <https://onlinelibrary.wiley.com/doi/abs/10.1002/pop4.411>

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# Impact of Returnee Remittances on Migrant Households' Well-being in Bangladesh

Sima Rani Dey <sup>1,2</sup>, Faroque Ahmed <sup>1,3</sup>, Mohammad Tareque <sup>1</sup>, Md. Moniruzzaman <sup>1</sup>

## ABSTRACT

The study evaluates the impact of returnee remittances (RRs) on the well-being of migrant households in Bangladesh using survey data collected from two migrant-intensive districts using multi-stage stratified random sampling. Our findings reveal that RRs have a positive and significant impact on subjective, objective, and relational dimensions of well-being. The pre-post analysis suggests that sensible investments in human capital and positive agreement on improved social status by migrants confirm their subjective well-being. Increased participation of migrant families in regular social ceremonies ensures relational well-being as well as reduces inequality via interhousehold transfer. Moreover, the findings for objective well-being employing the propensity score matching (PSM) technique indicates that compared to non-migrants, remittances contribute to returnee migrants' land possession, income, expenditure, savings, and investment base. Hence, RRs proved to be an effective medium for ensuring migrant households' welfare in Bangladesh by contributing substantially to income generation, upgrading living standards, and improving the social recognition level. Policies aiming at launching intervention programs of financial literacy including digital finance for safe money transfer and creating a conducive atmosphere for investment are essential to maintain remittance inflows and to foster RR's positive impact more sustainable.

**Keywords:** International remittances, well-being, returnee migrants, propensity score matching.

Journal Category and Indexed: SJR: Q1 and Indexed in Social Sciences Citation Index (SSCI)

Journal with Publisher Name: European Journal of Development Research, Published by Springer Nature.

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Paper Link: <https://link.springer.com/article/10.1057/s41287-024-00650-z>

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# International Remittances and Household Expenditure Patterns in Bangladesh

Sima Rani Dey <sup>1, 2</sup>, Faroque Ahmed <sup>1, 3</sup>

## ABSTRACT

The study endeavours to investigate how the transfers of international remittances influence the expenditure behaviour of returnee migrant families in Bangladesh. The primary data were collected using the Multi-Stage Stratified Random Sampling technique through a structured questionnaire from Tangail and Comilla on several expenditure characteristics of migrants. Propensity Score Matching (PSM) method is employed to assess the impact of remittances on expenditure patterns of returnee migrant households through the estimation of average treatment effects on the treated. The PSM technique has allowed us to evaluate the impact of remittances on several expenditure categories such as food, non-food, education, medical, and so on. The study findings divulge that remittances exhibit a significant and positive impact on poverty reduction since it has contributed a lot in terms of income generation and increment of consumption expenditures. Compared to non-migrant families, migrant families are more exposed to positive behavioural transformations because of their spendings on productive investments like non-durable goods, education and health care. Therefore, the findings underline the optimistic view of migration and development theory that foreign remittances support to increase the investments both in the physical and human capital of migrant families as well as to improve the wellbeing of Bangladeshi people.

**Keywords:** International remittances, household, expenditure, PSM, Bangladesh

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# Measuring Economic, Social and Environmental Wellbeing of Asian Economies

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## ABSTRACT

This study aims to address the economic, social, and environmental wellbeing issues simultaneously by measuring the carbon intensity of wellbeing (CIWB) of Asian economies employing Prais-Winsten and pooled OLS estimator. The measure of CIWB is made taking into account a ratio of the two indicators—CO<sub>2</sub> emissions per capita and life expectancy at birth. There is a paucity of studies that concentrate on human and social wellbeing indicators (i.e., water, sanitation, life expectancy) together applying the Environmental Kuznets Curve (EKC) hypothesis. Therefore, we have also investigated the EKC hypothesis as this theory hypothesizes the link involving human and environmental wellbeing and development. The findings utilizing the two econometric techniques indicate that in both the estimation models urban population access to an improved water source and total population access to improved water source has consistently negative and significant effects on CIWB. The fertility rate and prevalence of HIV pose no threat to CIWB. These findings demonstrate that social and human wellbeing indicators of the Asian economies are sustainable to this moment as they are lowering CIWB which is desirable. Contrary, GDP per capita, exports as a percent of GDP, and urban population have a significant and positive impact on CIWB which poses a challenge for the sustainability issue. We also have found the existence of the EKC hypothesis indicating environmental quality will increase past a turning point. The findings of the paper are well matched with the view of the “Economic and ecological modernization” theory and “human ecology” theory.

**Keywords:** CO<sub>2</sub> emission, Urbanization, Environmental wellbeing, Life expectancy, EKC hypothesis

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus

Journal with Publisher Name: Environmental Science and Pollution Research, Published by Springer Nature.

To be cited:

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# The Impact of Oil Price Shocks on Oil and Gas Production amidst Geopolitical Risk in OPEC: Insights from Method of Moments Quantile Regression

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Anisur Rehman <sup>4</sup>, Md. Fakhre Alam <sup>1</sup>

## ABSTRACT

The livelihoods of individuals in the contemporary era are primarily contingent upon the accessibility and affordability of natural energy sources. Among these, oil and gas are paramount as foundational resources that contribute to the modernization of lifestyles. However, the accessibility and affordability of these indispensable commodities can be disrupted by global oil price shocks and geopolitical tensions. Considering this, we employ the “method of moments quantile regression,” the panel “augmented mean group,” and GMM-style PVAR granger non-causality test approaches to investigate the impact of decomposed oil price shocks on OPEC’s oil and gas production in the presence of geopolitical risk during the period from January 2013 to October 2023. Our findings indicate that oil price risk shocks harm OPEC countries’ oil and gas production with lower production capacity. Additionally, geopolitical risk hampers the gas production of these countries. Conversely, countries with higher production capacity experience an intensification in oil and gas production due to increased oil price demand shock. Furthermore, oil price risk shock has a Granger-causal effect on oil and gas production. This article provides policy implications for OPEC countries, highlighting the need to address the challenges of oil price shocks and geopolitical risk to ensure stable and sustainable oil and gas production.

**Keywords:** Oil price shock, Geopolitical risk, Oil production, Gas production, OPEC, Method of moments quantile regression

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus

Journal with Publisher Name: Journal of the Knowledge Economy, Published by Springer Nature.

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# The Impact of Investment in Human Capital on Investment Efficiency: A PLS-SEM Approach in the Context of Bangladesh

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## ABSTRACT

This study aims to evaluate the impact of human capital investment, encompassing training, education, knowledge, and skills, on the efficiency of banks in Bangladesh. Utilizing a simple random sampling method, data is gathered from 309 respondents through a seven-point Likert scale. The analysis employs measurement modeling and structural equation modeling with the PLS-SEM approach. The findings reveal a positive association between human capital investment and bank efficiency. The study suggests that by investing in training, education, knowledge, and skills, banks can enhance their investment efficiency, recognizing the varying performance levels of employees. This implies a need for aligning human capital through strategic investments. Institutional investors utilize investment management frameworks to operationalize investment policies, where efficiency integrates risk, return, and total cost. The implications of this study provide actionable insights for managers, owners, decision-makers, and academicians, serving as a basis for policy dialogue. The research contributes to existing knowledge by shedding light on the relationship between human capital investment and investment efficiency, drawing from social exchange theory and resource-based view theory.

**Keywords:** Human capital investment, Investment efficiency, Human resources, Structural equation modeling

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus.

Journal with Publisher Name: Quality & Quantity, Published by Springer Nature.

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# Sustainable Growth-Environment Nexus in the Context of Four Developing Asian Economies: A Panel Analysis

Mowshumi Sharmin <sup>1</sup>, Mohammad Tareque <sup>1</sup>

## ABSTRACT

This paper has used a stirpat model to investigate the synergistic effect of CO<sub>2</sub> emission, energy consumption, energy intensity, economic growth, population, urbanization and trade openness to demonstrate growth environment nexus in four selected developing Asian economies. Taking a panel data set from Bangladesh, China, India and Indonesia this study applies Autoregressive Distributed Lag (ardl) model and vec Granger Causality/Block Exogeneity Wald Tests. The empirical results show that energy intensity, urbanization, population, and per capita gdp growth are the *raison d'être* of CO<sub>2</sub> emissions whereas trade openness is found to be negatively related to CO<sub>2</sub> emissions. Conversely, energy consumption, urbanization, population and trade openness are positively related to per capita gdp. In addition, it also investigates the Environmental Kuznets Curve (ekc) hypothesis and the findings substantiate an inverted Ushaped relationship. Cross-section short-run coefficients of country-level data are inquired into to check the robustness of the panel outcomes.

**Keywords:** EKC hypothesis, STIRPAT model, CO<sub>2</sub> emission, urbanization, energy consumption

Journal with Publisher Name: Journal of Managing Global Transitions, Published by University of Primorska, Faculty of Management Koper.

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Paper Link: [https://econpapers.repec.org/article/mgtyoumgt/v\\_3a18\\_3ay\\_3a2020\\_3ai\\_3a3\\_3ap\\_3a237-256.htm](https://econpapers.repec.org/article/mgtyoumgt/v_3a18_3ay_3a2020_3ai_3a3_3ap_3a237-256.htm)

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# Impact of Public and Private Investment on GDP Growth in Bangladesh: Crowding-in or Out?

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## ABSTRACT

This study investigates the impact of public and private investment on GDP growth in Bangladesh over the period 1980-2016 within ARDL framework. It also enquires the causal relationship between investment (public and private) and GDP growth using Block Exogeneity Wald Test technique. The study primarily finds that there exists a significant impact of both public and private investment on GDP growth in the long run. In the short run, public investment does not affect, but private investment has a positive impact on GDP growth. The study also explores a bidirectional association between public investment and GDP growth whereas unidirectional relationships from private investment to GDP growth and from public investment to private investment. Consequently, public investment crowds-in private investment. Therefore, increase in public investment is critical to moving to the next level of the country's growth.

**Keywords:** Public investment, private investment, GDP growth, crowding-in and -out effects, ARDL bounds test.

Journal with Publisher Name: Global Journal of Human-Social Science: E Economics, Published by Global Journals.

To be cited:

Islam, M., Hossain, A., & Tareque, M. (2018). Impact of Public and Private Investment on GDP Growth in Bangladesh: Crowding-in or Out?. Global Journal of Human-Social Science: E Economics, 18(6), 1-8.

Paper Link: [https://socialscienceresearch.org/index.php/GJHSS/article/view/2598/1-Impact-of-Public-and-Private\\_html](https://socialscienceresearch.org/index.php/GJHSS/article/view/2598/1-Impact-of-Public-and-Private_html)

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# Assessment of Export-Led Growth Hypothesis: The Case of Bangladesh, China, India and Myanmar

Md. Monirul Islam <sup>1,2</sup>, Mohammad Tareque <sup>2</sup>, Md. Moniruzzaman <sup>2</sup>, Md. Idris Ali <sup>3</sup>

## ABSTRACT

The Asian countries, particularly Bangladesh, China, India and Myanmar, have been witnessing impressive economic growth rates due to their trade performance in the international market. Although export-led growth assumption is functional in these economies, existing pieces of literature hardly considered them in their studies. Against this backdrop, the present study investigates the export-led growth hypothesis for four South Asian countries - Bangladesh, China, India, and Myanmar -covering country-specific different time ranges. This research employs the autoregressive distributed lag (ARDL) bounds testing approach to co-integration and the MWALD Granger causality test to determine the causal relationship between variables. The results obtained from the autoregressive distributed lag method confirm the co-integration among the variables. In addition, the Granger causality test explores both the export-led and growth-led export hypotheses in Bangladesh and India as per the bidirectional causation between exports and economic development. Only the export-led growth theorem is relevant to China, and the growth-led export hypothesis is valid in the case of Myanmar based on the unidirectional causation between these variables. Therefore, any joint footstep of BCIM countries is critical to promoting exports by penetrating new destinations with diversified export goods and services. The obtained findings also indicate the potential for utilising these countries' unused resources to encourage exports to uplift the existing growth trajectory.

**Keywords:** Export-led growth, growth-led export, economic growth, ARDL method, MWALD Granger causality test, BCIM countries

Journal Category and Indexed: SJR: Q2 and Indexed in Emerging Sources Citation Index (ESCI).

Journal with Publisher Name: International Journal of Economy of Regions, Published by Russian Acad Sciences.

To be cited:

Islam, M. M., Tareque, M., Moniruzzaman, M. & Ali, M. I. (2022). Assessment of Export-Led Growth Hypothesis: The Case of Bangladesh, China, India and Myanmar. *Ekonomika regiona/Economy of regions*, 18(3), 910-925, <https://doi.org/10.17059/ekon.reg.2022-3-20>.

Paper Link: <https://cyberleninka.ru/article/n/assessment-of-export-led-growth-hypothesis-the-case-of-bangladesh-china-india-and-myanmar/viewer>

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## **ENERGY AND POWER**



# Robot Race in Geopolitically Risky Environment: Exploring the Nexus between AI-Powered Tech Industrial Outputs and Energy Consumption in Singapore

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## ABSTRACT

The rapidly evolving technological landscape, fuelled by AI, has become a global focal point, while optimized robotic energy consumption offers significant productivity gains for tech companies. However, AI-driven industries are susceptible to the geopolitical risks, affecting their outputs. This study examines the disaggregated energy consumption of AI-driven tech companies' industrial outputs in the most robot density country, Singapore during July 2010–March 2021. The partial cross-quantilogram approach-based findings reveal a significantly positive spillover effect of both renewable and non-renewable energy consumption on AI-driven tech industrial outputs in all quantiles (q.10-q.90) under long memory, where geopolitical risk 'threats' and 'acts', negatively impact these industrial outputs and renewable and non-renewable energy-augmented tech industrial outputs mirrored by AI in the upper quantiles (q.60-q.90) under booming market conditions. The study's findings are robust using the wavelet local multiple correlation technique. The policy implications emphasize optimizing AI utilization in energy consumption for enhanced tech company productivity and addressing geopolitical risks effectively.

**Keywords:** AI-powered tech industrial output, Renewable energy consumption, Non-renewable energy consumption, Geopolitical risks, Singapore

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus, Social Sciences Citation Index (SSCI).

Journal with Publisher Name: Technological Forecasting and Social Change, Published by ELSEVIER.

To be cited:

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# Renewable and Non-Renewable Energy Consumption in Bangladesh: The Relative Influencing Profiles of Economic Factors, Urbanization, Physical Infrastructure and Institutional Quality

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Muhammad Shahbaz <sup>4, 5</sup>, Xuan Vinh Vo <sup>6</sup>

## ABSTRACT

Many researchers investigate the socio-demographic and economic factors-induced energy consumption, particularly fossil fuel-based non-renewable energy consumption, but there exists a scarcity to study on the same factors-driven renewable energy consumption along with institutional quality factor. Given this, our research strives to analyse the relative influence of income growth, foreign direct investment, domestic investment, urbanization, physical infrastructure, and institutional quality on renewable and non-renewable energy consumption in Bangladesh for the period of 1990–2019 using the dynamic ARDL (DARDL) simulations method. The empirical findings divulge that income growth shows positive and negative effect on renewable and non-renewable energy consumption, respectively. Domestic investment has positive effect for renewable and non-renewable energy consumption. Foreign direct investment is found to have positive influencing factor for renewable energy consumption. Urbanization negatively impacts renewable energy consumption but urbanization affects non-renewable energy consumption positively. Physical infrastructure is a negative and positive determinant of renewable and non-renewable energy consumption, respectively. Institutional quality positively affects renewable energy consumption. The robustness of the results is comparatively exhibited using the DARDL simulations area plots where 20% positive and negative shocks to the predictors on the predicted variables are presented.

**Keywords:** Renewable and non-renewable energy consumption, Income, growth, FDI, Urbanization, Infrastructure, Institutional quality

Journal Category and Indexed: SJR: Q1 and Indexed in Science Citation Index Expanded (SCIE).

Journal with Publisher Name: Journal of Renewable Energy, Published by ELSEVIER.

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Islam, M. M., Irfan, M., Shahbaz, M., & Vo, X. V. (2022). Renewable and Non-Renewable Energy Consumption in Bangladesh: The Relative Influencing Profiles of Economic Factors, Urbanization, Physical Infrastructure and Institutional Quality. *Renewable Energy*, 184, 1130-1149.

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# Electricity Consumption and GDP Nexus in Bangladesh: A Time Series Investigation

Sima Rani Dey <sup>1</sup>, Mohammad Tareque <sup>1</sup>

## ABSTRACT

The purpose of this paper is to assess the empirical cointegration, long-run and short-run dynamics as well as causal relationship between electricity consumption and real GDP in Bangladesh for the period of 1971-2014. Autoregressive Distributed lag (ARDL) “Bound Test” approach is employed for the investigation in this study. Both short-run and long-run coefficients are providing strong evidence of having positive significant association between electricity consumption and GDP. Our long-run results remain robust to different measurements and estimators as well. The study reveals the unidirectional causal flow running from per capita electricity consumption to per capita real GDP in the short run. The study result also yields strong evidence of bidirectional causal relationship between per capita electricity consumption and per capita real GDP in the long run with feedback. It is suggested that both electricity generation and conservation policy will be effective for Bangladesh economy. In prior studies, lack of causality between electricity consumption and GDP is due to the omitted variables. Combined effects of public spending and trade openness on GDP and electricity consumption are also considerable.

**Keywords:** Electricity consumption, GDP, ARDL bounds test, Causality test

Journal Category and Indexed: SJR: Q1 and Indexed in Emerging Sources Citation Index (ESCI)

Journal with Publisher Name: Journal of Asian Business and Economic Studies, Published by Emerald

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# Electricity Consumption and Income Nexus: Evidence from Bangladesh

Sima Rani Dey <sup>1</sup>

## ABSTRACT

The purpose of this study is to examine the causal relationship between per capita electricity consumption (PCEC) and per capita gross national income (GNI) (PCGNI) in Bangladesh for the period of 1971-2014. By using Vector error correction modeling approach. The study reveals that positive short-run unidirectional causal flow running between PCEC to PCGNI without feedback which implies that an increase in electricity consumption promptly affects economic activity. The results of both long-run and joint causality yield strong evidence of bidirectional causal relationship between PCEC and per capita real GNI with feedback. Therefore, both electricity generation and conservation policy will be effective for Bangladesh economy. So, smooth supply of electricity is necessary to meet the growing electricity demand for consumption; consequently, it will lead to sustain of growth and take it even higher level.

**Keywords:** Cointegration, Energy sector, Error correction models, Electricity

Journal Category and Indexed: SJR: Q2 and Indexed in Emerging Sources Citation Index (ESCI)

Journal with Publisher Name: International Journal of Energy Sector Management, Published by Emerald.

To be cited:

Dey, S. R. (2019). Electricity Consumption and Income Nexus: Evidence from Bangladesh. International Journal of Energy Sector Management, 13(4), 1020-1037.

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# Minerals Import Demands and Clean Energy Transitions: A Disaggregated Analysis

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Oleg Mariev <sup>1</sup>, Nahla Samargandi <sup>4, 5, 6</sup>

## ABSTRACT

Global energy transitions entangled with a paradigm shift from fossil fuel to renewable energy consumption elevates the demand for clean energy technologies, such as solar photovoltaics (PV), wind turbines, electric vehicles (EV) and power storage systems etc., which require significant volumes of minerals as raw materials. We measure the import-demand function of minerals by incorporating the role of renewable energy production capacity for selected OECD countries. We apply the cross-sectional autoregressive distributed lag (CS-ARDL) approach to analyse the panel time-series data due to common correlation, country heterogeneity, non-stationarity and potential endogeneity over the period 1990–2020. Our findings confirm that the overall renewable energy production, including installed solar and wind capacities, fosters the import demands for both the aggregate and disaggregate minerals (copper and nickel) in the long run. We also observe that the copper price elasticity of demand holds the Marshallian demand hypothesis, while the nickel price violates it in the long run. Besides, we find a heterogeneous effect of the income factor on the mineral import demand. Therefore, our findings recommend optimizing mineral resources to reinforce the global agenda of energy transitions toward a decarbonized or a net-zero emissions trajectory by the 21st century.

**Keywords:** Mineral imports, Clean energy transitions, Wind and solar capacities, Renewable electricity, CS-ARDL approach, OECD countries

Journal Category and Indexed: SJR: Q1 and Indexed in Social Sciences Citation Index (SSCI).

Journal with Publisher Name: Journal of Energy Economics, Published by ELSEVIER.

To be cited:

Islam, M. M., Sohag, K., Hammoudeh, S., Mariev, O., & Samargandi, N. (2022). Minerals Import Demands and Clean Energy Transitions: A Disaggregated Analysis. *Journal of Energy Economics*, 113, 106205. <https://doi.org/10.1016/j.eneco.2022.106205>

Paper link: <https://www.sciencedirect.com/science/article/abs/pii/S0140988322003541>

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# Mineral Import Demand and Clean Energy Transitions in the Top Mineral-Importing Countries

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## ABSTRACT

The clean energy transitions require a large volume of minerals to handle its diverse technologies, such as solar photovoltaics (PV), wind turbines etc. Therefore, mineral importing countries concentrated on cleaner energy production confront an uprising trend in critical mineral prices due to thriving demands. We quest for the response of the top mineral importing countries' import demand for minerals to the clean energy transitions from 1996 to 2019 within the import-demand function analysis. Using the cross-sectional autoregressive distributed lag (CS-ARDL) method, our findings divulge a significantly positive response of mineral import demand to solar and wind energy productions in the long run. We also find that mineral price elasticity holds the Marshallian demand hypothesis in the mineral-laden solar energy generation while contradicting it in wind energy production. In addition, the oil price substitution effect does not sustain, whereas exchange rate depreciates mineral import demands in the long run. Therefore, our policy implications encompass optimizing the mineral resources for clean energy transitions to materialize the 21st century's global agenda of a decarbonized or net-zero emissions trajectory.

**Keywords:** Minerals import, Clean energy transitions, Installed solar capacity, Installed wind capacity, CS-ARDL approach, Mineral-importing countries

Journal Category and Indexed: SJR: Q1 and Indexed in Social Sciences Citation Index (SSCI).

Journal with Publisher Name: Resources Policy, Published by ELSEVIER.

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# Energy Consumption–Economic Growth Nexus within the Purview of Exogenous and Endogenous Dynamics: Evidence from Bangladesh

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## ABSTRACT

This paper investigates the nexus between energy consumption and economic growth in Bangladesh over the period 1971–2018 using the autoregressive distributed lag (ARDL) approach to cointegration. The main contribution of this study is the inclusion of exogenous dynamic (globalisation) and endogenous factor (political risk indicator measured by political terror scale (PTS)) to the energy consumption–economic growth nexus. The study explores an energy consumption–economic growth nexus where globalisation and PTS have both positive and negative influences on this relationship in the short run and long run. The Toda–Yamamoto Granger causality test confirms the feedback hypothesis, that is bidirectional causal relationship between energy consumption and economic growth, and the result is further verified by the impulse response function. Therefore, policymakers should enhance the availability of energy for people and industries to continue the existing momentum of economic growth. Besides, the government should cautiously deal with both the globalisation and political risk issues about energy consumption–economic growth nexus in Bangladesh.

Journal Category and Indexed: SJR: Q4 and Indexed in Emerging Sources Citation Index (ESCI).

Journal with Publisher Name: World Development Sustainability Published by ELSEVIER.

To be cited:

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# Assessment of Nexus between Energy Consumption and Sustainable Development in Russian Federation: A Disaggregate Analysis

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## ABSTRACT

Russia's competitiveness and productivity encounter the intense environmental challenges due to the reckless fossil fuel consumption, putting this country's long-run sustainability at risk. Despite this, this country intends to achieve the sustainable development goal by cutting greenhouse gas (GHG) emissions to 70% of its 1990 level as pledged in the Paris Agreement in 2016. This research assesses the relationship between disaggregate (renewable and non-renewable) energy consumption and sustainable development within the purview of financial, demographic and country risk indicators using annual time-series data from 1990 to 2020. This paper utilizes an augmented ARDL approach to co-integration and a dynamic ARDL simulation model to detect counterfactual forecasting shocks to the predictor variables and their effects on the predicted indicator. The study's findings divulge that renewable energy consumption escalates the sustainable development in the long run, whereas non-renewable energy consumption declines. Then again, urbanization and political terror scale (PTS) have a long-term adverse effect on sustainable development. On the other hand, financial openness substantially exerts a favorable long-term influence on sustainable development. Therefore, this study suggests shifting to generous renewable energy usage to ease the adverse effect of non-renewable energy consumption on the sustainable development in Russia.

**Keywords:** Energy consumption, Renewable energy, Non-renewable energy, Sustainable development, Augmented ARDL model, Dynamic ARDL simulations, Russia

Journal with Publisher Name: World Development Sustainability, Published by ELSEVIER.

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# **An Analysis of Energy, Environment and Economic Growth (EEE) Nexus: A 2SLS Approach**

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## **ABSTRACT**

The growing apprehension of global warming, greenhouse gas emissions and increasing use of fossil fuel due to emergent economic activity signifies that for the sustainability of the environment cleaner energy use is important. In the same pursuit, this study aims to examine the energy, environment and economic growth nexus of Bangladesh, incorporating both renewable and non-renewable energy consumption with forest depletion. We have employed the Two-Stage Least Square approach to avoid likely simultaneity bias and possible endogeneity of the variables arising from the ordinary least squares. Result postulates non-renewable energy consumption and forest depletion have a significant impact on CO<sub>2</sub> emission, whereas renewable energy shows no significant consequence. The issue which arises in this regard is that renewable energy consumption has not yet reached a stage from where it could play a substantial role in emission reduction of the country. Therefore, countries should adopt policies that would provide a conducive environment for affordable energy use.

**Keywords:** Energy, Environment, 2-SLS, Economic Growth

Journal Category and Indexed: SJR: Q4 and Indexed in Scopus and Emerging Sources Citation Index (ESCI).

Journal with Publisher Name: OPEC Energy Review, Published by Wiley.

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# Globalization and Politico-Administrative Factor-Driven Energy-Growth Nexus: A Case of South Asian Economies

Md. Monirul Islam <sup>1</sup>, Md. Saiful Islam <sup>2</sup>

## ABSTRACT

In modern days, economic growth is energy-dependent and vice versa. Earlier studies concentrated a bit to analyze the influence of globalization and politico-administrative factors on the energy consumption-economic growth nexus in developing economies. The motivation for the current research is to scrutinize the energy consumption-economic growth nexus while accounting for the influence of globalization and country risk indicators—the politico-administrative factors in a panel of 4 South Asian countries (Bangladesh, India, Pakistan, and Sri Lanka) during 1980–2018. To check the issues of heterogeneity and cross-sectional independence, the study employs the pooled mean group estimation method. The investigated results provide a nexus between energy consumption and economic growth where globalization - a long-run force positively affects this nexus in the long run and negatively in the short run. Besides, the politico-administrative factors have an adverse impact in the long run and an insignificant effect on this nexus in the short run. The Dumitrescu–Hurlin non-causality test establishes the feedback hypothesis concerning energy consumption-economic growth nexus in South Asian economies. The study results remain robust across the dynamic ordinary least square estimator. Therefore, this study suggests sustaining the energy-growth nexus to properly handle globalization and politico-administrative and the Covid-19 pandemic issues through institutional quality. Moreover, the objective-oriented policies are critical to strengthening the energy-growth nexus without decaying environmental quality in South Asian countries.

Journal Category and Indexed: SJR: Q3 and Indexed in Emerging Sources Citation Index (ESCI).

Journal with Publisher Name: Journal of Public Affairs, Published by Wiley and Sons.

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# Renewable and Non-Renewable Energy Consumption Driven Sustainable Development in ASEAN Countries: Do Financial Development and Institutional Quality Matter?

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Muhammad Kamran Khan <sup>6</sup>, Vishal Dagar <sup>7, 8</sup>

## ABSTRACT

Energy consumption for sustainable development has become a crucial issue in recent years. The anthropogenic effects of traditional energy sources (non-renewables) underscore the need for renewable energy and efforts to promote its adoption have comprised policy makers' strategies to achieve sustainable development. At the same time, institutional stability is a necessary element needed to meet the goal of sustainable development via improved management of resources and technology diffusion. The literature shows some contradictory findings on this matter and this study aims to clarify. Thus, this research scrutinizes the contribution of renewable and non-renewable energies in sustainable development while also taking into account financial development and institutional quality in ASEAN countries from 1980 to 2018. To assess for co-integration, a pooled mean group (PMG) regression technique is employed and the findings from this technique are verified by using fully modified ordinary least square (FMOLS), dynamic ordinary least square (DOLS), and canonical cointegration regression (CCR) techniques in conjunction with other panel- based econometric procedures to evaluate the robustness of the model. The findings reveal a significantly positive influence for renewable energy and a significantly adverse impact for non-renewable energy with respect to sustainable development in ASEAN countries. In addition, the results indicate that institutional quality and financial development have adverse effects on sustainable development. Therefore, this research recommends sustainable management of non-renewables and greater promotion of renewables by strengthening institutional quality in ASEAN countries.

**Keywords:** Sustainable development, Energy consumption, Institutional quality, Renewable energy, Non-renewable energy, Financial development

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus

Journal with Publisher Name: Environmental Science and Pollution Research, Published by Springer Nature.

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# Factor Proportions Model for Russian Mineral Supply-Driven Global Energy Transition: Does Externality Matter?

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## ABSTRACT

The Factor Proportions Model posits that international trade is contingent upon the relative abundance of factors of production, namely natural resources, capital, and labor. Countries endowed with mineral resources are inclined to export them to countries with higher demand but lower supply. However, geopolitical events disrupt the smooth transition of mineral-consuming economies towards sustainable renewable energy production. This study aims to investigate the interplay between Russian mineral exports and renewable energy generation, taking into account geopolitical risks, within both the global and Chinese contexts. The study covers monthly data from January 2011 to December 2021. Utilizing the cross-quantilogram approach, this study reveals a positive spillover effect of Russian mineral exports on global and Chinese renewable electricity production, across various time frames, including monthly, quarterly, bi-annual, and annual memories. Additionally, labor force's contribution plays a pivotal role in facilitating renewable energy production for both the global and Chinese contexts. Notably, externality factor, particularly geopolitical risks, exert a detrimental spillover effect on renewable energy generation for both the globe and China, although China's geopolitical risk events appear to be beneficial for its own renewable energy production in bullish and bearish states, across all memories. Russian geopolitical risks evince heterogeneous spillover effects on global renewable energy generation. To bolster the robustness of the findings obtained from the CQ approach, this study employs the partial cross-quantilogram (PCQ) approach. This research recommends the imperative of ensuring a secure supply of critical minerals and expediting the global energy revolution, while effectively mitigating geopolitical hazards, with the overarching goal of achieving a trajectory towards net-zero emissions.

**Keywords:** Russian mineral supply, Renewable energy generation, Labor force, Geopolitical turmoil, Globe, China

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# Mineral Import Demand-Driven Solar Energy Generation in China: A Threshold Estimation Using the Counterfactual Shock Approach

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## ABSTRACT

The global shift towards clean energy sources necessitates a substantial supply of critical minerals to drive renewable energy technologies such as concentrating solar-thermal power (CSP) and solar photovoltaics (PV). This growing demand for mineral resources underscores the need to examine the import-demand function of minerals in relation to solar energy generation in China, spanning the period from 1996 to 2019. By employing both conventional autoregressive distributed lag (ARDL) and dynamic ARDL (DARDL) simulation methods, our study reveals a positive and significant long-term relationship between mineral import demand and installed solar capacity. Furthermore, our analysis demonstrates that the average mineral price elasticity adheres to the Marshallian demand premise, while the substitution effect between mineral prices and oil prices contradicts this premise. Conversely, the impact of exchange rates on mineral import demand is found to be negligible. However, our findings indicate that long-term economic growth fosters mineral import demand. To ensure the robustness of our results, we conduct a dynamic ARDL simulation-based counterfactual analysis to measure the threshold level of mineral response to shocks in the regressors, including oil and mineral prices, exchange rates, and GDP growth. These findings provide valuable insights for policy recommendations in China, emphasizing the importance of maximizing mineral resources to augment solar power production and achieve the global objective of a carbon-neutral landscape in the twenty-first century.

Journal with Publisher Name: Renewable Energy, Published by ELSEVIER.

To be cited:

Islam, M. M., Sohag, K., & Mariev, O. (2024). Mineral Import Demand-Driven Solar Energy Generation in China: A Threshold Estimation Using the Counterfactual Shock Approach. *Renewable Energy*, 221, 119764.

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# Impacts of Nuclear Energy, Greener Energy, and Economic Progress on the Load Capacity Factor: What We Learn from the Leading Nuclear Power Economies?

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Shujaat Abbas <sup>4, 7</sup>, Umer Shahzad <sup>5, 6, 7</sup>

## ABSTRACT

The worldwide tremor of environmental degradation commonly represents the escalation of emissions levels and ecological footprints that harm the planet's biocapacity. This is because of using gigantic non-renewable energy resources, urbanization stream and massive economic activities in the major industrialized nations. Amid this situation, we investigate the influence of disaggregated energy measures, e.g., renewable, and nuclear energy, income growth and urbanization on the load capacity factor (biocapacity divided by the ecological footprint) of major nuclear power countries, such as France, the USA, Canada, China, and Russia during 1990–2021. To this end, we utilize the CS-ARDL procedure because of the endogeneity, common correlation, non-stationarity in data and heterogeneity in panel units. We contribute to considering the supply side dynamic of environmental degradation parameter, the load capacity, from the perspective of the top nuclear power nations that deviates our analysis from the prevailing scholarly works. However, our findings confirm a significantly positive impact of renewable and nuclear energy on the load capacity factor in improving environmental safety. Besides, economic growth and urbanization negatively affect the load capacity dynamics in spurring environmental degradation. Our findings are robust across an alternative estimation technique, namely the Dumitrescu and Hurlin (DH) causation analysis. Therefore, we recommend formulating pragmatic policies to deter the detrimental effects of income and urbanization by properly utilizing sustainable energy resources to conserve the natural environment.

**Keywords:** Renewable energy, Economic growth, Urbanization, Load capacity, Environmental degradation, Top nuclear power countries

Journal with Publisher Name: Geoscience Frontiers, Published by ELSEVIER.

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## **ENVIRONMENT AND CLIMATE CHANGE**



# Unlocking Environmental, Social, and Governance (ESG) Performance through Energy Efficiency and Green Tax: SEM-ANN Approach

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Mohammad Ekramol Islam <sup>5</sup>

## ABSTRACT

In today's global business landscape, the concepts of green financing and green tax have become pivotal instruments for fostering environmentally responsible practices. The purpose of this study is to comprehensively assess how green financing and green tax collectively influence CSR through various dimensions, including employees, customers, and communities. This research employs a partial least squares structural equation modeling (PLS-SEM) approach, which allows for a rigorous analysis of the complex relationships between the variables involved. Data is collected through surveys, enabling a quantitative evaluation of the impacts and interdependencies. The results indicate that green financing has a positive and significant impact on CSR through customer ( $\beta = 0.609$ ), employee ( $\beta = 0.522$ ), and community ( $\beta = 0.509$ ) dimensions. The results also show that green tax has a positive and significant impact on CSR through customer ( $\beta = 0.183$ ), employee ( $\beta = 0.182$ ), and community ( $\beta = 0.296$ ) dimensions. The findings of this study provide a deeper understanding of how green financing and green tax practices correlate with CSR, both separately and collectively. The implications of this research extend to multiple stakeholders. For businesses, the results offer strategic insights into how environmentally conscious financial practices align with CSR objectives. Policymakers can draw upon the findings to craft effective regulatory frameworks that incentivize sustainable business behavior. Additionally, stakeholders gain valuable insights into how businesses can harmonize economic success with environmental stewardship, promoting engagement with socially responsible entities. This research marks a distinct contribution to the academic landscape by delving into the synergistic impact of green financing and green tax on CSR, particularly within the distinctive context of Bangladesh. In doing so, it successfully addresses a noticeable void within the existing literature, providing fresh insights into the intricate dynamics and opportunities confronting businesses in developing nations.

**Keywords:** Environmental performance, Social performance, Governance performance, Green tax, Energy efficiency, ESG performance

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus, Science Citation Index Expanded (SCIE).  
Journal with Publisher Name: Energy Strategy Reviews, Published by ELSEVIER.

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# Unveiling the Link between Environmental Management Accounting, Energy Efficiency, and Accountability in State-Owned Enterprises: An Integrated Analysis Using PLS-SEM and fsQCA

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## ABSTRACT

The rising importance of sustainability and accountability in organizations has prompted the exploration of innovative approaches to enhance environmental performance and energy efficiency (ENE). The purpose of this research is to examine the extent to which environmental management accounting (EMA) and ENE practices contribute to accountability within state-owned enterprises (SOEs) in Bangladesh. This study employs both symmetrical (PLS-SEM) and asymmetrical (fsQCA) approaches. The study verifies internal consistency, reliability, validity, common method bias, and collinearity issues through measurement model analysis and conducts path analysis after testing model fitness in structural model analysis. Finally, the study uses fsQCA to conduct in-depth analyses of causal contributions from different conditions to a specific outcome of interest. The PLS-SEM analysis revealed significant positive relationships between EMA and ENE with transparency, responsibility, and answerability. These results indicate that organizations adopting EMA and ENE practices are more likely to exhibit higher levels of transparency, demonstrate greater responsibility towards environmental matters, and be more answerable to stakeholders for their accountability. Further, the study identified ENE as a mediator of EMA and accountability. Finally, the fsQCA analysis supported the importance of both EMA and ENE as necessary conditions for achieving accountability indicating the integration of EMA and ENE to foster transparency, responsibility, and answerability effectively. This study implies that by implementing EMA systems and focusing on energy-efficient operations, organizations can enhance transparency, responsibility, and answerability to stakeholders, fostering a positive image and reputation. Therefore, SOEs may consider integrating these practices into their overall sustainability strategies to maximize their impact on accountability and environmental performance.

**Keywords:** Environmental management accounting, Energy efficiency, Accountability, Transparency, Responsibility, Answerability

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus and PubMed

Journal with Publisher Name: Environmental Challenges, Published by ELSEVIER.

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Rahman, M. M., Saha, S., & Hoque, M. (2024). Unveiling the Link Between Environmental Management Accounting, Energy Efficiency, and Accountability in State-Owned Enterprises: An Integrated Analysis Using PLS-SEM and fsQCA, *Environmental Challenges*, 14, 100832, <https://doi.org/10.1016/j.envc.2023.100832>

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# Predicting Air Quality of Dhaka and Sylhet Divisions in Bangladesh: A Time Series Modeling Approach

Md. Mazharul Islam <sup>1</sup>, Mowshumi Sharmin <sup>1</sup>, Faroque Ahmed <sup>1</sup>

## ABSTRACT

Air pollution has emerged as one of the major public health threats. In recent years, Bangladesh has ranked among top air polluted countries around the globe. Air quality in Bangladesh is measured on daily basis using national standards of five pollutants—NO<sub>2</sub>, CO, Ozone (O<sub>3</sub>), SO<sub>2</sub>, and particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>) and presented as indexed value ranged from 0 to 500 which is further classified from good to extremely unhealthy. In this study, we have applied Seasonal Autoregressive Integrated Moving Average (SARIMA) model to forecast weekly air quality of Dhaka and Sylhet divisions in Bangladesh. Our study reveals the existence of seasonal pattern of the air quality and suggests extremely unhealthy and very unhealthy air in January–March 2020. Therefore, policymaker should address this period as the air quality directly influences public health.

**Keywords:** Air quality, Bangladesh, Air pollution, SARIMA model, Time series modeling

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus and Science Citation Index Expanded (SCIE)

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Paper Link: <https://link.springer.com/article/10.1007/s11869-020-00823-9>

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# Modelling the Asymmetric Relationship between Urbanization, Energy Consumption and CO2 Emissions: A Study of Income Classified Economies

Sima Rani Dey <sup>1</sup>, Tanzila Sultana <sup>2</sup>, Mowshumi Sharmin <sup>2</sup>

## ABSTRACT

This study investigates how CO<sub>2</sub> emissions behave with the increase or decrease in urbanization and energy consumption, employing pooled ordinary least square (OLS) estimator on a panel of 137 countries from 1961–2019. The findings indicate that there is asymmetry between the process of urbanization, energy consumption and CO<sub>2</sub> emissions. From a global perspective, the asymmetry of urbanization on CO<sub>2</sub> emissions is more prominent than energy consumption, although CO<sub>2</sub> emissions are more responsive towards energy consumption in symmetric cases. For low-income economies, urbanization does not exhibit any significant impact on carbon emission, but energy consumption does. For lower-middle income economies, a lower level of urbanization has a greater impact on CO<sub>2</sub> emission than an increase in urbanization, but carbon emissions are more reactive towards energy consumption. Moreover, both urbanization and energy consumption posit a significant impact on carbon emission for upper-middle income economies. Therefore, environment-friendly urbanization and efficient energy consumption should be prioritized to offset the negative externalities.

Journal Category and Indexed: SJR: Q2

Journal with Publisher Name: Journal of Environment and Urbanization ASIA, Published by SAGE Publications Inc.

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# Impact of Globalization, Foreign Direct Investment, and Energy Consumption on CO2 Emissions in Bangladesh: Does Institutional Quality Matter?

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## ABSTRACT

Bangladesh's recent doorway to the spectacular growth trajectory is largely associated with the shared contributions of globalization, FDI, trade, economic growth, urbanization, energy consumption, innovation, and institutional quality that affect its natural environment. Earlier studies hardly incorporated these dynamics together especially innovation and institutional quality to examine their impacts on environmental degradation in Bangladesh. This study attempts to scrutinize the effect of globalization, foreign direct investment, economic growth, trade, innovation, urbanization, and energy consumption on CO2 emissions in the presence of institutional quality in Bangladesh over the period 1972– 2016 by utilizing dynamic ARDL simulations' model by Jordan and Philips (2018). The investigated results depict that globalization; foreign direct investment, and innovation have a negative effect on CO2 emissions in improving environmental quality while economic growth, trade, energy consumption, and urbanization positively impact CO2 emissions and hence stimulate environmental degradation both in the long and short run. Besides, institutional quality measured by the political terror scale (PTS) affects CO2 emissions positively and thereby degrades the quality of the environment in both the long and short run. Therefore, policy implication should go toward encouraging globalization, foreign direct investment and innovation; and the sensible utilization of income growth, trade potentials, energy consumption, urbanization and institution is required for the sake of environmental quality in Bangladesh.

**Keywords:** Globalization, Economic factors, CO2 emissions, Environmental degradation, Dynamic ARDL simulations model, Bangladesh

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus

Journal with Publisher Name: Environmental Science and Pollution Research, Published by Springer Nature.

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# Synergy between Sectoral Output, Energy and CO2 Emission: A Panel Cointegration Analysis of South Asia

Mowshumi Sharmin <sup>1</sup>

## ABSTRACT

**Purpose:** The purpose of this study is to investigate the synergy between sectoral output, energy use and CO2 emission with other factors for a panel of South Asian economies including Afghanistan, Bangladesh, Bhutan, India, Pakistan, Maldives, Nepal and Sri Lanka. **Design/methodology/approach:** The analysis is done using annual panel data from 1980–2019 using dynamic ordinary least squares (DOLS), fully modified OLS (FMOLS) and Toda-Yamamoto techniques. **Findings:** Empirical findings reveal the existence of a statistically significant long-run cointegrating relationship between energy use, sectoral output such as agricultural, industry and service gross domestic product (GDP), globalization, urbanization and CO2 emission. DOLS and FMOLS result posits that in the case of the South Asian region agriculture GDP does not contribute to increasing CO2 emission while service and industrial GDP is responsible for increasing CO2 emission along with urban population, energy use and to some extent globalization. More remarkably, the contribution of the service GDP is greater than the other two sectoral outputs in increasing CO2 emission with a feedback hypothesis. **Practical implications:** As CO2 emission is a global phenomenon with a cross-boundary effect, these empirical findings might contribute to formulating implementable energy and environmental policies to sustain growth, as well as to protect the environment in the regional context. **Originality/value:** The study contributes to the literature by providing an empirical investigation of South Asia incorporating the contribution of sectoral output to understand the potential contribution of each sector on energy and emission. This is the first study on the South Asian context from the perspective of sectoral output, energy and emission.

**Keywords:** Energy Use, Sectoral Output, CO2 emission, Urbanization, FMOLS, DOLS, Co- integration, Dynamic regression

Journal Category and Indexed: SJR: Q3 and Indexed in Social Sciences Citation Index (SSCI).

Journal with Publisher Name: International Journal of Energy Sector Management, Published by Emerald.

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Sharmin, M. (2022). Synergy between Sectoral Output, Energy and CO2 Emission: A Panel Cointegration Analysis of South Asia. International Journal of Energy Sector Management, 16(4), 794-814. <https://doi.org/10.1108/IJESM-11-2020-0016>

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# Relationship of Renewable and Non-Renewable Energy Utilization with CO2 Emission of Bangladesh

Mowshumi Sharmin <sup>1</sup>

## ABSTRACT

This paper attempts to find out the relationship of renewable and non-renewable energy utilization with CO2 emission in Bangladesh. The analysis is done using the Autoregressive Distributed Lag (ARDL), Dynamic Ordinary Least Squares (DOLS), Fully Modified OLS (FMOLS) and Canonical Cointegrating Regression (CCR) techniques to observe the robustness of the findings. Results postulate that non-renewable energy and GDP has statistically significant positive association with CO2 emission whereas, renewable energy is negatively associated. From all estimation techniques, it is found that 1% augment in non-renewable energy utilization will boost CO2 emission by on an average more than 0.75%. Moreover, Toda -Yamamoto (TY) and vector autoregression impulse response procedure have been employed and the findings confirm that non-renewable energy is causing CO2 emission but renewable energy is not causing CO2 emission. The paper adds value to the present energy-emission study in a way that in Bangladesh context there are paucity of studies that concentrate on the effect of both renewable and non-renewable energy utilization on CO2 emission and there exists no study with multiple estimation techniques with a view to get robust findings. Another contribution is the dynamic effects of impulse response function also complement the ARDL, DOLS, FMOLS and CCR findings. As findings are responsive to the methodology used, therefore, for robust results, multiple techniques are employed. This study recommends increasing the share of renewable energy will play a critical role to reduce CO2 emission consequently global warming.

**Keywords:** Economic growth, CO2 emission, Bangladesh, Renewable energy utilization, Non-renewable energy utilization, Panel Cointegration.

Journal with Publisher Name: Energy Economics Letters, Published by Asian Economic and Social Society.

To be cited:

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# Econometric Analysis of the Effect of Economic Globalization, Energy Intensity, Urbanization, Industrialization and Growth on CO2 Emissions of Bangladesh

Mowshumi Sharmin <sup>1</sup>, Mohammad Tareque <sup>1</sup>

## ABSTRACT

This paper examines the effect of economic globalization, energy intensity, urbanization, industrialization and growth on per capita CO2 emissions of Bangladesh employing techniques of Johansen co-integration, Vector Error-Correction Models (VECM) and Vec Granger Causality Tests. To analyse the impacts of innovations in all variables on CO2 emissions, this study additionally employs variance decomposition (VDC) for robust findings. The result of long run and causality test postulates that growth stimulates energy consumption and consequently causes CO2 emissions. VDC result posits that in the long run, energy intensity, urbanization, industrialization and growth contribute more than 60% of the CO2 emission in Bangladesh. On the other hand, effect of economic globalization becomes stronger in the long run but in explaining fluctuations in CO2 emissions it contributes only 9%. To avoid adverse effect of growth implementations of energy conservation policies are needed.

**Keywords:** Johansen co-integration, globalization, CO2 emissions, urbanization, industrialization

Journal with Publisher Name: Managing Global Transitions, Published by University of Primorska, (Slovenia).

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## **HEALTH AND WELLBEING**



# Partnerships in the Introduction of New Routine Vaccines in Bangladesh: Evidence from a Prospective Process Evaluation

Sharmin Khan Luies <sup>1</sup>, Tahmina Sultana <sup>2</sup>, Ashwin Budden <sup>3</sup>, Mohammad Asaduzzaman <sup>4</sup>, Md. Billal Hossain <sup>5</sup>, Matthew Kelly <sup>6</sup>, Darren Gray <sup>6</sup>, Md. Jasim Uddin <sup>7</sup>, Haribondhu Sarma <sup>6</sup>

## ABSTRACT

**Objective:** To assess the contribution of partners in the introduction of two new vaccines concurrently: pneumococcal 10-valent conjugate vaccine (PCV-10) and inactivated polio vaccine (IPV) into the routine Expanded Programme on Immunization (EPI) in Bangladesh. **Design:** We conducted a prospective process evaluation that included the theory of change development, root cause analysis and in-depth investigation. As part of process tracking, we reviewed relevant documents, observed trainers' and vaccinators' training and key stakeholder meetings. We analysed the data thematically. **Setting:** We purposively selected eight Upazila (subdistrict) and one city corporation covering nine districts and seven administrative divisions of Bangladesh. **Participants:** Nineteen national key informants were interviewed and 16 frontline health workers were invited to the group discussions considering their involvement in the vaccine introduction process. **Results:** The EPI experienced several challenges during the joint introduction of PCV-10 and IPV, such as frequent changes in the vaccine introduction schedule, delays in budget allocation, vaccine supply shortage and higher wastage rates of IPV. EPI addressed these challenges in collaboration with its partners, that is, the World Health Organization (WHO) and United Nations Children's Fund (UNICEF), who provided technical assistance to develop a training curriculum and communication materials and enhanced demand generation at the community level. In addition, the WHO conducted a country readiness assessment for PCV-10, and UNICEF supported vaccine shipment. Other government ministries, City Corporations and municipalities also supported the EPI. **Conclusions:** The partnership among the EPI stakeholders effectively addressed various operational challenges during the joint introduction of PCV-10 and IPV helped strengthen Bangladesh's immunisation systems. These accomplishments are attributed to several factors that should be supported and strengthened for future vaccine introductions in Bangladesh and other low and-middle countries.

**Keywords:** Partnerships, vaccines

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Paper Link: <https://bmjopen.bmj.com/content/bmjopen/12/9/e061742.full.pdf>

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# **An Inquiry into the Achievements in Health Outcomes of Bangladesh: Role of Health Expenditure, Income, Governance and Female Education**

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## **ABSTRACT**

**Purpose:** Bangladesh is applauded for its achievement in various health and social outcomes though criticized for its failure in properly dealing with governance issues. This paper intends to see how the health outcomes (in case of life expectancy, under-5 mortality and adolescent fertility) are impacted by health expenditure (both public and private), per capita income in presence of overall governance and female education. We assume rapid progress in female education reflects the Bangladeshis' social responsiveness to change.

**Design/Methodology/Approach:** We employ Autoregressive Distributed Lag technique to estimate the models with data ranges from 1990-2016 under two different scenarios.

**Findings:** We have found that all the explanatory variables exert significant impact on health outcomes. Furthermore, public health expenditure is augmented with a composite governance issue and this enhances robustness as well as statistical significance of the models. These suggest that the governance issues play as a very crucial role to achieve the expected health outcomes. Female secondary enrolment ratio appears with improved coefficients in terms of sign and magnitude for all the health indicators.

**Originality/Value:** This paper contributes to the existing literature showing econometric evidence that highlights the importance of governance and female education in improving health outcomes of Bangladesh apart from health expenditure and per capita gross domestic product.

**Keywords:** Public health expenditure, health outcome, composite governance, female education, ARDL.

Journal Category and Indexed: SJR: Q2 and Indexed in Scopus

Journal with Publisher Name: Journal of Human Rights in Health Care, Published by Emerald Group.

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Sultana, T., Ahmed, F. and Tareque, M. (2023). An Inquiry into the Achievements in Health Outcomes of Bangladesh: Role of Health Expenditure, Income, Governance and Female Education, International Journal of Human Rights in Healthcare, 16(1), 93-114, <https://doi.org/10.1108/IJHRH-02-2021-0027>.

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# An Assessment of Anemia Status of Child-Mother Pairs in Bangladesh

Jahidur Rahman Khan <sup>1, 2</sup>, Md. Mazharul Islam <sup>3</sup>,  
Raaj Kishore Biswas <sup>4</sup>, Amena Sultana <sup>5</sup>

## ABSTRACT

Anemia (e.g. iron deficiency anemia) is a serious public health concern that often coexists within the same household, particularly threatening child-mother pairs. Despite the high prevalence, there is a paucity of research to understand the anemia status of child-mother pairs in Bangladesh. This study aimed to explore the anemia status of child-mother pairs and associated factors using data from the 2011 Bangladesh Demographic and Health Survey (BDHS). Multinomial logistic regression was used to estimate the association between factors and different pairs. Among the child-mother pairs, about 26% was both anemic, followed by child anemic mother non-anemic (25%) and child non-anemic mother anemic (17%). Several factors were significantly associated with anemia status of child-mother pairs. Current breastfeeding status was associated with greater odds of different anemia status pairs. Mothers' undernutrition was related to greater odds of child-mother anemic pairs (adjusted odds ratio [AOR] 1.775, 95% confidence interval [CI] 1.216–2.593,  $p = 0.0030$ ). Living in wealthier households was associated with lower odds of child-mother anemic pairs (AOR 0.519, 95% CI 0.320–0.842,  $p = 0.0080$ ). Overall, the findings from this study show the importance of simultaneous consideration of children and mothers for anemia-related health programs as well as cohort-specific tailored interventions to reduce anemia burden.

**Keywords:** Children and mother, Anemia, Co-occurrence, Factors, Bangladesh

Journal Category and Indexed: SJR: Q1 and Indexed in Science Citation Index Expanded (SCIE)

Journal with Publisher Name: Children and Youth Services Review, Published by ELSEVIER

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# Machine Learning to Promote Health Management through Lifestyle Changes for Hypertension Patients

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## ABSTRACT

The purpose of this paper is to investigate the use of machine learning models to develop a diagnostic system for hypertension patients so that people can modify their daily lifestyle to manage their condition. We propose this system by adopting the concepts of saliency maps for image data to non-image, lifestyle data with a data perturbation simulation technique. We trained the proposed system on a new lifestyle dataset that we extracted from a survey on Asian sub-population. The proposed system consists of a convolution neural network (CNN) as the diagnostic model, and is combined with simulation techniques to explain the concepts/insights learnt by the CNN. We compared classification performance of the CNN model with other baseline models fitted with other types of hypertension data including neural network, decision tree and other CNN model from literature. The CNN achieved a 68–70% accuracy on training and testing datasets. Comparing with other baseline models, our CNN model provided more consistent performance in terms of accuracy, sensitivity, specificity and area under receiver operating characteristic (ROC) curve. Using the simulations, we learnt that CNN captured not only direct correlation between the variables and the target, but also learnt group-based interactions. Our study reveals that age, gender, diabetes status, body mass index, smoking, occupation and education are some important lifestyle factors affecting hypertension. Avoiding smoking, maintaining a balanced diet to prevent unnecessary weight gaining, regular monitoring of blood sugar level for diabetic care, and stress relief exercise can reduce hypertension risk.

**Keywords:** Hypertension, Deep learning, Convolutional neural network, Health management, Perturbation-based simulation Prediction

Journal Category and Indexed: SJR: Q1 and Indexed in Emerging Sources Citation Index (ESCI)

Journal with Publisher Name: Array, Published by ELSEVIER

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# Individual and Community-Level Determinants of Quality Antenatal Care in Six South Asian Countries

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## ABSTRACT

Maternal health is a global public health concern. The paucity of antenatal care (ANC) during pregnancy is directly associated with maternal mortality. This study assessed the individual and community-level determinants of quality ANC in six South-Asian countries. Data were obtained from a Demographic health survey of six South-Asian countries. This study included a sample of 180,567 (weighted) women aged 15–49 who had given birth in the preceding three years prior to the survey. The quality of ANC was determined by assessing whether a woman had received blood pressure monitoring, urine and blood sample screening, and iron supplements at any ANC visits. Frequency, percentage distribution, and inferential analysis (multilevel mixed-effects model) were conducted. The proportion of quality antenatal care utilization in South Asia was 66.9%. The multilevel analysis showed that women aged 35–49 years (AOR = 1.16; 95% CI = 1.09–1.24), higher education (AOR = 2.84; 95% CI = 2.69–2.99), middle wealth status (AOR = 1.55; 95% CI = 1.49–1.62), richest wealth status (AOR = 3.21; 95% CI = 3.04–3.39), unwanted pregnancy (AOR = 0.92; 95% CI = 0.89–0.95) and 2–4 birth order (AOR = 0.86; 95% CI = 0.83–0.89) were among the individual-level factors that were significantly associated with quality ANC utilization. In addition, rural residence (AOR = 0.77; 95% CI = 0.74–0.8), and big problem – distance to health facility (AOR = 0.63; 95% CI: 0.53–0.76) were the among community level factors there were also significantly associated with use of quality ANC. Meanwhile, women who lived in India (AOR: 22.57; 95% CI: 20.32–25.08) and Maldives (AOR: 33.33; 95% CI: 31.06–35.76) had higher odds of quality ANC than those lived in Afghanistan. Educational status, wealth status, pregnancy wantedness, sex of household head, birth order, place of residence, and distance to health facility were associated with quality ANC. Improving educational status, improving wealth status, reducing the distance to health facilities, and providing rural area-friendly interventions are important to increase the quality of ANC in South Asia.

**Keywords:** Quality antenatal care (QANC), Multi-level analysis, Prenatal care, South-Asia, Community-level factors

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus, PubMed  
Journal with Publisher Name: Scientific Reports, Published by Nature Portfolio.

To be cited:

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<https://doi.org/10.1038/s41598-024-67206-3>

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# Associations of Socio-Demographic and Environmental Factors with the Early Development of Young Children in Bangladesh

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Muhammad Zillur Rahman Khan <sup>4</sup>, Md. Monirul Islam <sup>1</sup>

## ABSTRACT

This study analyzed data on the early developmental status of 7352 children, aged from 36 to 59 months, using the Early Childhood Developmental Index (ECDI) to assess literacy-numeracy, physical, social-emotional, and learning domains. The study explored correlates of developmental status with a range of socio-demographic and environmental factors that may impact children's development. The analyses use data from the Bangladesh Multiple Indicator Cluster Survey, 2012–2013. Overall, about 65% of children had potential for healthy development, with highest rate of being on track being in the physical domain (~ 94%) and the lowest rate in the literacy domain (~ 23%). Older children, who had been breastfed, whose mothers had higher education, and who lived in urban areas were more likely to be developmentally on track. Children, whose family members engaged with them in four or more stimulating activities and read books, were more likely to be on a consistent and positive developmental trajectory. Children who were male, malnourished and experienced physical punishment were less likely to be on a positive developmental track. Policymakers need to invest in early childhood development including the funding of interventions so that children in Bangladesh can achieve their developmental potential.

**Keywords:** Bangladesh, Early childhood, Developmental risk, Socio-demographic factors, Family environment

Journal Category and Indexed: SJR: Q2 and Indexed in Emerging Sources Citation Index (ESCI)

Journal with Publisher Name: International Journal of Early Childhood, Published by Springer Nature

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# **A Negative Association between Prevalence of Diabetes and Urban Residential Area Greenness Detected in Nationwide Assessment of Urban Bangladesh**

Jahidur Rahman Khan <sup>1</sup>, Amena Sultana <sup>2</sup>, Md. Mazharul Islam <sup>3</sup>, Raaj Kishore Biswas <sup>4</sup>

## **ABSTRACT**

Residential area greenness may influence diabetes, but limited studies have explored this relationship in developing countries. This study assessed the association between residential area greenness and diabetes among urban adults in Bangladesh. The mediation effect of the body mass index (BMI) was also assessed. A total of 2367 adults aged  $\geq 35$  years were extracted from a nationally representative survey. Diabetes was characterised as fasting plasma glucose level  $\geq 7.0$  mmol/L or taking prescribed medications to reduce blood sugar level. Residential area greenness was estimated by enhanced vegetation index. Binary logistic regression models were employed to estimate the association between residential area greenness and diabetes adjusting for sociodemographic factors. Mediation analysis was performed to assess whether BMI mediated the association between greenness and diabetes. Greater area greenness was associated with lower odds of diabetes (adjusted odds ratio 0.805, 95% confidence interval 0.693–0.935,  $p = 0.0052$ ). BMI significantly mediated 36.4% of the estimated association between greenness and diabetes. Presence of areas of greenness adjacent to living area tends to be associated with lower diabetes prevalence. Findings emphasised the importance of preserving the local environment to tackle the growing diabetes prevalence in Bangladesh.

Journal Category and Indexed: SJR: Q1 and Indexed in Social Sciences Citation Index (SSCI)

Journal with Publisher Name: Scientific Reports, Published by Springer Nature

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<https://doi.org/10.1038/s41598-021-98585-6>

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# On Prevention of Diarrheal Disease: Assessing the Factors of Effective Handwashing Facilities in Bangladesh

Sorif Hossain <sup>1</sup>, Md. Mazharul Islam <sup>2</sup>, Md. Asraful Islam Khokon <sup>3</sup>,  
Md. Monirul Islam <sup>2</sup>

## ABSTRACT

People in Bangladesh usually do not utilize handwashing facilities properly, which makes it challenging to implement hygiene practices of handwashing to reduce diarrhea and other health risks. Against this backdrop, this research attempts to assess the factors associated with Effective Handwashing Facilities (EHFs) in Bangladesh utilizing the Multiple Indicator Cluster Survey 2019. This study utilizes descriptive statistics techniques and also bivariate and multivariable logistic regression methods by representing odd ratios to identify the relationship between associated factors and EHF in Bangladesh. The descriptive statistics show that about 74.22% of the households in Bangladesh have EHFs. Gender, education, ethnicity, male-head households, household wealth status, source of water, sanitation status, sharing toilet facility are identified as the potential determinants of EHF. As a result, we recommend that all levels of society in Bangladesh have continuous access to handwashing equipment and facilities to reduce hygiene-related illnesses especially diarrheal disease.

**Keywords:** Bangladesh, diarrheal diseases, effective handwashing facility (EHF), handwashing

Journal Category and Indexed: SJR: Q2 and Indexed in Scopus

Journal with Publisher Name: Journal of Population and Social Studies, Published by Institute for Population and Social Research, Mahidol University.

To be cited:

Hossain, S., Islam, M. M., Khokon, M. A. I., Islam, M. M. (2022). On Prevention of Diarrheal Disease: Assessing the Factors of Effective Handwashing Facilities in Bangladesh, Journal of Population and Social Studies, 30, 103-115.

<https://so03.tci-thaijo.org/index.php/jpss/article/view/256281>

Paper Link: <https://so03.tci-thaijo.org/index.php/jpss/article/view/256281>

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# Relationship between Blood Pressure and BMI in Young Adult Population: A National-Level Assessment in Bangladesh

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## ABSTRACT

Young adulthood is a crucial period for major physiological transitions. Environmental changes associated with these transitions can influence health behaviour and health (e.g. poor diet, high body weight and elevated blood pressure (EBP)). Excess body weight can lead to EBP; however, little is known about this relationship among young adults in developing countries. Focusing on Bangladesh, this study assessed the association between BMI and blood pressure (BP) metrics (systolic BP (SBP), diastolic BP (DBP) and BP class (optimal, normal/high normal and elevated)). Sex-specific analyses of these relationships were performed to assess any difference across sexes. Furthermore, associations of overweight/obesity with BP metrics were investigated. Young adults aged 18–24 years (n 2181) were included from nationally representative cross-sectional Bangladesh Demographic and Health Survey 2017–2018. Multivariable linear and multinomial logistic regression models examined the relationships between BMI, overweight/obesity and BP metrics. Findings reveal that higher BMI was associated with higher SBP (0·83; 95 % CI 0·67, 0·99), DBP (0·66; 95 % CI 0·54, 0·74) and higher odds of having EBP (adjusted OR 1·24; 95 % CI 1·17, 1·31). These relationships were stronger among males than females. Moreover, overweight/obese individuals had higher SBP, DBP and higher odds of having EBP than individuals with normal BMI. Strategies to reduce body weight and to improve healthy lifestyle, and awareness and monitoring of BP may help to address these serious health problems, particularly at an early age.

**Keywords:** Association, Elevated blood pressure, Overweight and obesity, Young people.

Journal Category and Indexed: SJR: Q1 and Indexed in Science Citation Index Expanded (SCIE)

Journal with Publisher Name: British Journal of Nutrition, Published by Cambridge Core, Cambridge University Press.

To be cited:

Khan JR, Biswas RK, Islam Md M. (2022). Relationship Between Blood Pressure and BMI In Young Adult Population: A National-Level Assessment in Bangladesh. British Journal of Nutrition, 128 (10), 2075-2082. <https://doi.org/10.1017/S0007114521005134>

Paper Link: <https://cambridge.org/core/journals/british-journal-of-nutrition/article/relationship-between-blood-pressure-and-bmi-in-young-adult-population-a-nationallevel-assessment-in-bangladesh/12F7D3FE0DD7A22E867A3C94B3C62F24#>

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# Do the Issues of Religious Minority and Coastal Climate Crisis Increase the Burden of Chronic Illness in Bangladesh?

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## ABSTRACT

**Background:** Chronic illness with disability and its out-of-pocket expenditure (OOPE) remains a big financial challenge in Bangladesh. The purpose of this study was to explore how religious minority problem and coastal climate crisis with other common risk factors determined chronic illness with a disability and its financial burden in Bangladesh. Existing policy responses, especially, social safety net programs and their governance were analyzed for suggesting better policy options that avoid distress financing. **Methods:** Binary logistic and multiple linear regression models were respectively used to identify the factors of disability, and high OOPE based on Bangladesh Household Income and Expenditure Survey 2016 data. **Results:** We found that disable people had relatively higher OOPE than their non-disabled counterparts and this OOPE further surges when the number of disabilities increases. In addition to the common factors, the novelty of our findings indicated that the religious minority problem as well as the coastal climate crisis have bearing on the disability burden in Bangladesh. The likelihood of having a chronic illness with a disability was 13.2% higher for the religious minorities compared to the majorities (Odds ratio (OR): 1.132, 95% confidence interval (CI): 1.033–1.241) and it was 21.6% higher for the people who lived in the exposed coast than those who lived in the non-exposed area (OR: 1.216, 95% CI: 1.107–1.335). With disabilities, people from the exposed coast incurred higher OOPE than those from the non-exposed areas. Although receiving assistance from social safety net programs (SSNPs) seemed to reduce their high OOPE and financial distress such as selling assets and being indebted, the distribution was not equitably and efficiently managed to confirm the process of inclusion leakage-free. On average, those who enrolled from the minority group and the exposed coast paid the relatively higher bribes. **Conclusions:** To reduce burden, the government should strengthen and specify the existing SSNPs more for disable people, especially from the minority group and the exposed coast, and ensure the selection process more inclusive and leakage-free.

**Keywords:** Religious minority problem, Coastal climate crisis, Chronic illness, Disability, Distress financing, Social safety net, Bangladesh

Journal Category and Indexed: SJR: Q1 and Indexed in Science Citation Index Expanded (SCIE)  
Journal with Publisher Name: BMC Public Health, Published by Springer

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Hossain, A., Alam, M. J., Mydam, J., & Tareque, M. (2022). Do the Issues of Religious Minority and Coastal Climate Crisis Increase the Burden of Chronic Illness in Bangladesh? BMC Public Health, 22(1), 270.

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# Correlations Among the Maternal Healthcare Services in Bangladesh: An Application of Joint Modelling Technique

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Ruhul Amin <sup>4</sup>, Md Atiqul Islam <sup>5</sup>

## ABSTRACT

**Background:** Caesarean section (C-section) in Bangladesh have received great attention as the number has been amplified during the last two decades. The question arises whether this rise has a correlation with other maternal healthcare services and/or has been influenced by their predictors. **Objective:** The main objectives of this study are to assess correlations among the maternal healthcare indicators—antenatal care use, childbirth in private facilities, and childbirth through C-section—and identify their associated predictors in Bangladesh through the development of an appropriate cluster-adjusted joint model that accounts for inter-correlation among the indicators in the same cluster. **Design:** The 2019 Bangladesh Multiple Indicator Cluster Survey data have been utilized in this study. Separate generalized linear mixed models developed for the three outcome variables are combined into a joint model by letting cluster-specific random effects be in association. **Findings:** The joint model shows that the number of antenatal cares is fairly positively correlated with delivery in private facilities and C-section, while the latter two are strongly positively correlated. Household socio-economic condition, women and their partners' education, women's exposure to mass media, place of residence, religion, and regional settings have significant influence on the joint likelihood of receiving antenatal care, choosing a private health facility for birth, and opting for C-section birth. **Key conclusions and implications:** The rising rate of C-section delivery over time is alarming for Bangladesh to achieve the World Health Organization target of 10–15 %. The joint model reveals that the rising rate of C-sections may be correlated with the choice of a private health facility as the delivery place. The study findings also suggest that maternal childbirth care is private dominant and predominantly utilized by urban women with better education and higher socioeconomic status. The policy should focus on strengthening the public health sector while also keeping importance in increasing coverage of maternal care services among the less well-off.

**Keywords:** Antenatal care, Delivery in private facilities, Caesarean section, Inter-correlation, Joint model

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus, PubMed  
Journal with Publisher Name: Heliyon, Published by ELSEVIER.

To be cited:

Bhowmik KR, Das S, Saha UR, Amin R, Islam MA., (2023). Correlations Among the Maternal Healthcare Services in Bangladesh: An Application of Joint Modelling Technique, Heliyon, 9(12), 22453. <https://doi.org/10.1016/j.heliyon.2023.e22453>

Paper Link: <https://www.sciencedirect.com/science/article/pii/S2405844023096615>

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# **HUMAN RESOURCE AND ORGANIZATIONAL DEVELOPMENT**



# Linking Transformational Leadership with Employees' Engagement in the Creative Process

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Munshi Muhammad Abdul Kader Jilani <sup>3,4</sup>, Sumayya Begum <sup>5</sup>

## ABSTRACT

**Purpose:** Given that individual creativity is a critical element to achieving organizational competitiveness, the purpose of this study is to attempt to investigate how transformational leadership (TL) drives employee creative process engagement (CPE) by improving their creative self-efficacy (CSE). **Design/methodology/approach:** Analysis has been performed based on 194 responses from information and communication technology firms using a cross-sectional survey design. The study follows a deductive research approach to test the hypotheses. It uses SmartPLS2 and IBM SPSS 21 for a structural equation model. **Findings:** The investigation finds that TL significantly predicts CPE, and CSE partially mediates the TL–CPE relationship. The result demonstrates that TL shapes an organizational climate conducive to the employees' CPE by building employees' self-efficacy. **Research limitations/implications:** The study sample was drawn from a single sector of the Bangladeshi economy. The sampling design represents a limitation, for which the findings cannot be broadly generalized. Replications and augmentations of the study in various industrial areas will help test the robustness and generalizability of the discoveries. **Practical implications:** TL and CPE are desirable organizational outcomes across all cultures. From a practical standpoint, the outcomes demonstrate that TL is linked to CPE and CSE among information and communication technology employees. This study extends the appropriateness of CSE into Asian countries. Notably, it provides additional insight into a contemporary TL model that can unequivocally impact leadership development in the Bangladeshi information and communication technology firms. Managers or chief executive officers in the small and medium enterprises are expected to exhibit TL attributes by designing a supportive organizational climate that will motivate employees to exhibit creative activities. **Social implications:** TL transforms employees' psychological state to get them to engage in creative processes, benefiting the organizational stakeholders by their unconventional creative behavior. The TL-driven innovative outcome through employees' CPE contributes to the development of social well-being. **Originality/value:** This paper adds significance to the extant literature regarding the determinants of the mediating impact of CSE on TL and CPE from the viewpoints of information and communication technology firms, particularly from developing countries, such as Bangladesh. It also contributes to reconcile the findings of the previous studies around the globe in both developed and developing countries.

**Keywords:** Transformational leadership, Innovation, Small and medium enterprises, Information and communication technology, Organizational theory and behavior, Creative process engagement, Creative self-efficacy

Journal Category and Indexed: SJR: Q1 and Indexed in Social Sciences Citation Index (SSCI) Journal with Publisher Name: Journal of Management Research Review, Published by Emerald Publishing Limited.

To be cited:

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# Corporate Environmental Strategy and Voluntary Environmental Behavior—Mediating Effect of Psychological Green Climate

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Md. Aftab Uddin <sup>5</sup>

## ABSTRACT

Given the growing intent to prevent decay in environmental management, the present study seeks to unearth the impact of corporate environmental strategy on employees' voluntary environmental behavior by regulating or facilitating their perceived psychological green climate. Research problems and research questions are built on the essence of multiple theories—goal-setting theory, social identity theory, and social learning theory for grounding the research model. A total of 294 replies were collected through a self-administered survey from diverse industrial panoramas. We used structural equation modeling (SEM) analytics via AMOS-version 20.0 for measuring the hypothesized results. The study revealed that the corporate environmental strategy is displaying an insignificant direct influence on voluntary environmental behavior. However, the corporate environmental strategy indirectly influences, via the mediation effect, voluntary environmental behavior of employees through their psychological green climate perception. Directions for future research are recommended based on insights from the implications and limitations of the study.

**Keywords:** Corporate environmental strategy, voluntary environmental behavior, psychological green climate; goal setting theory, social identity theory, and social learning theory

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus, Social Science Citation Index (SSCI).

Journal with Publisher Name: Sustainability, Published by Multidisciplinary Digital Publishing Institute (MDPI).

To be cited:

Das, A. K., Biswas, S. R., Abdul Kader Jilani, M. M., & Uddin, M. A. (2019). Corporate Environmental Strategy and Voluntary Environmental Behavior—Mediating Effect of Psychological Green Climate. *Sustainability*, 11(11), 3123. <https://doi.org/10.3390/su1111312>

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# The Influence of Knowledge Sharing on Sustainable Performance: A Moderated Mediation Study

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Mohammad Tazul Islam <sup>3</sup>, Md. Aftab Uddin <sup>4</sup>

## ABSTRACT

The past few decades showed inadequate discussion of the impact of employees' knowledge sharing and its diffusion on advancing banks' long-term sustainability. The objective of the study is to examine the role of employees' knowledge sharing on the sustainable performance of the banks operating in Bangladesh. Furthermore, this study tested the "moderated mediation model" of knowledge hiding and employees' ambidexterity on the association above. The researchers applied the deductive reasoning method through the application of quantitative techniques, using structural equation modeling. Finally, 287 respondents from different banks were chosen through a self-administered questionnaire survey in the capital city of Dhaka. The findings indicated that all the predictor variables significantly explain the outcome variable, except the influence of knowledge sharing. Mediation analysis showed that employees' ambidexterity mediated the association between knowledge sharing and sustainable performance. Surprisingly, moderation analysis revealed that the influence of knowledge sharing on employees' ambidexterity is not affected by knowledge hiding. This study adds to the existing literature by demonstrating the importance of knowledge hiding, along with explaining how knowledge sharing can motivate and influence employees to achieve sustainable performances. In addition, the main contribution of this study is to advance knowledge and add values in the forms of knowledge creation, preservation, and dissemination among practitioners, banking professionals, and academics for utilizing their domain-specific areas to increase long-term sustainability.

**Keywords:** Knowledge sharing, knowledge hiding, employees' ambidexterity, sustainable performance

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus, Social Science Citation Index (SSCI)

Journal with Publisher Name: Sustainability, Published by Multidisciplinary Digital Publishing Institute (MDPI).

To be cited:

Jilani, M. M. A. K., Fan, L., Islam, M. T., & Uddin, M. A. (2020). The Influence of Knowledge Sharing on Sustainable Performance: A Moderated Mediation Study, *Sustainability*, 12(3), 908.  
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# Enhancing Post-training Evaluation of Annual Performance Agreement Training: A Fusion of fsQCA and Artificial Neural Network Approach

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Mohammad Rezaul Karim <sup>3</sup>

## ABSTRACT

This study aims to enhance the post-training evaluation of the annual performance agreement (APA) training organized by the Bangladesh Public Administration Training Centre (BPATC), the apex training institute for civil servants. Utilizing fuzzy-set qualitative comparative analysis (fsQCA) and artificial neural network (ANN) techniques within Kirkpatrick's four-stage model framework, data were collected from a self-administered questionnaire survey of 71 in-service civil servants who participated in the APA training program. This study employs an asymmetric, non-linear model analyzed through a configurational approach and ANN to explore interrelationships among the four Kirkpatrick levels namely, reaction, learning, behavior, and results. Findings indicate that trainees were satisfied across all levels, identifying a non-linear relationship among these levels in post-training evaluation process. The research highlights that "learning skills" are most significant in the APA post-training evaluation, followed by behavior, results, and reaction. Theoretically, this research advances Kirkpatrick's model and adds to the literature on public service post-training evaluation. Practically, it recommends prioritizing strategies that address cognitive barriers to enhance training effectiveness. This study's innovative approach lies in its concurrent use of fsQCA and ANN methods to analyze the success or failure of APA-related trainees, offering alternative pathways to desired outcomes and contrasting traditional quantitative methods that provide a single solution. The findings have practical implications for public service training institutions and bureaucratic policymakers involved in capacity development, guiding the creation of more effective in-service training courses for public officials. The methodology and analysis can be applied in other contexts, allowing bureaucratic policymakers to replicate these findings in their learning institutes to identify unique configurations that lead to successful or unsuccessful training outcomes, adopt effective strategies, and avoid detrimental ones.

**Keywords:** Annual performance agreement, Learning, Artificial neural networks, Behavior, Trainees

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus, Science Citation Index Expanded (SCIE)

Journal with Publisher Name: PLoS ONE, Published by Public Library of Science

To be cited:

Islam MZ, Abdul Kader Jilani MM, Karim MR (2024). Enhancing Post-training Evaluation of Annual Performance Agreement Training: A Fusion of fsQCA and Artificial Neural Network Approach, PLoS ONE, 19(6), e0305916, <https://doi.org/10.1371/journal.pone.0305916>

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# Empirical Study on the Antecedents Predicting Organizational Resilience of Small and Medium Enterprises in Bangladesh

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## ABSTRACT

Human values and affective traits were found to predict attitudes toward the use of different types of knowledge-based theory through creative climate. In this study (N = 329), we aimed to gain a more comprehensive understanding of those predictors toward use in a structural equation model (SEM), provided a better overview of a possible structural path that drives to such antecedents for Small and Medium Enterprises (SMEs) in Bangladesh. Precisely, we predicted and found that the relations between the variables and impact of different variables were modeled and tested by applying SEM. Based on the questionnaires survey on SMEs in Bangladesh, this empirical study indicates that all the predictor variables significantly influence the endogenous variables except knowledge management (KM) and employee resilience (ER), and creative climate (CC) and organizational resilience (OR). The study provides several theoretical and practical implications for further research.

**Keywords:** Creative climate, knowledge management, employee resilience, organizational resilience

Journal with Publisher Name: Journal on Innovation and Sustainability RISUS, Published by Pontificia Universidade Católica de São Paulo (PUCSP) - Núcleo de Estudos do Futuro - NEF

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## **GENDER AND SOCIETY**



# Impact of Access to Land on Women's Economic Well-being: An Empirical Evidence from Rural Bangladesh

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## ABSTRACT

Rural women in Bangladesh usually have lack of access, control and ownership over their land property because of existing patriarchal norms of the rural society. The prime objective of this study was to assess the impact of rural women's access to land on their own income as well as household income. A multistage, geographically clustered, probability-based sampling approach was adopted for this study. Primary data were collected from the rural women living in Bangladesh using the Simple Random Sampling technique. Propensity Score Matching technique was used to assess the impact of land accessibility on household income and rural women's own income. Binary Logistic Regression technique was used to assess the opinions of women on their income increased due to access to land. The study findings revealed that land had a positive impact on household income but rural women's own income did not increase significantly despite having access to land. This study also showed that income, level of education, the existence of NGO operated programs in villages, and the number of visits to NGO offices by rural women were the key factors contributing to the improvement of their overall well-being. The findings imply that the government should design appropriate land ownership policy that guarantees titling as well as access of women to land.

**Keywords:** Women, Access, Land, Income, Bangladesh

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus

Journal with Publisher Name: Sage Open, Published by Sage.

To be cited:

Sultana, T., Mahmud, K. T., Moniruzzaman, Md., & Tareque, M. (2024). Impact of Access to Land on Women's Economic Well-Being: An Empirical Evidence from Rural Bangladesh, Sage Open, 14(1), 21582440241227705, <https://doi.org/10.1177/21582440241227705>.

Paper link: <https://journals.sagepub.com/doi/full/10.1177/2158244024>

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# Quantification of Urbanization Using Night-Time Light Intensity in Relation to Women's Overnutrition in Bangladesh

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Humayera Islam <sup>5,6,7</sup>, K Shuvo Bakar <sup>8</sup>

## ABSTRACT

Urbanization is accelerating in developing countries, which are simultaneously experiencing a rise in the prevalence of overnutrition (i.e., overweight and obesity), specifically among women. Since urbanization is a dynamic process, a continuous measure may better represent it when examining its association with overnutrition. However, most previous research has used a rural–urban dichotomy-based urbanization measure. This study utilized satellite-based night-time light intensity (NTLI) data to measure urbanization and evaluate its association with body weight in reproductive-aged (15–49) women in Bangladesh. Multilevel models estimated the association between residential area NTLI and women's body mass index (BMI) or overnutrition status using data from the latest Bangladesh Demographic and Health Survey (BDHS 2017–18). Higher area-level NTLI was associated with a higher BMI and increased odds of being overweight and obese in women. Living in areas with moderate NTL intensities was not linked with women's BMI measures, whereas living in areas with high NTL intensities was associated with a higher BMI or higher odds of being overweight and obese. The predictive nature of NTLI suggests that it could be used to study the relationship between urbanization and overnutrition prevalence in Bangladesh, though more longitudinal research is needed. This research emphasizes the necessity for preventive efforts to offset the expected public health implications of urbanization.

Journal Category and Indexed: SJR: Q1

Journal with Publisher Name: Journal of Urban Health, Published by Springer

To be cited:

Khan, J. R., Islam, M. M., Faisal, A. S. M., Islam, H., & Bakar, K. S. (2023). Quantification of Urbanization Using Night-Time Light Intensity in Relation to Women's Overnutrition in Bangladesh. *Journal of Urban Health*, 100(3), 562-571, <https://doi.org/10.1007/s11524-023-00728-9>.

Paper link: <https://link.springer.com/article/10.1007/s11524-023-00728-9>

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## **BUSINESS, TRADE, AND MARKETING**





# Symmetric and Asymmetric Effects of Attitude and Satisfaction on Sustainable Business Growth

Sheikh Ashiqurrahman Prince <sup>1</sup>, Md Mominur Rahman <sup>2</sup>, Sayed Azharul Islam <sup>3</sup>

## ABSTRACT

Microfinance plays a crucial role in fostering economic development, especially in underserved and impoverished communities. Using stimulus-organism-response (SOR) theory, the study investigates how microfinance, cost of loan, and individual funding and support affect borrowers' business attitudes and sustainable business growth, as well as the impact of satisfaction with these sources. The study collected 845 data points from the Khulan division of Bangladesh using a convenient sampling technique and analyzed them with Smrt Pls 4 and fsQCA 3 software. The results indicated that microfinance, cost of loan individual finding, and support significantly affect borrowers' business attitudes which in turn has a positive effect on sustainable business growth. The findings further show that apart from the relationship between microbusiness and business attitudes, business satisfaction does not moderate the relationships between cost of loan and business satisfaction as well as individual finding and support and business satisfaction. The study suggests insightful recommendations for academics, MFIs, and policymakers for poverty reduction through ensuring sustainable business conducted by microfinance. This study introduces two new concepts i.e., individual funding and support and business satisfaction as well as a new theory i.e., SOR in microfinance research, extending the theory's applicability, and research scope, and providing new suggestions for further research.

**Keywords:** Microfinance, Cost of Loan, Borrowers' Satisfaction, Business Attitudes, Sustainable Business Growth, Stimulus-Organism-Response (SOR) Theory

Journal Category and Indexed: Indexed in Scopus

Journal with Publisher Name: Journal of Risk Analysis and Crisis Response, Published by PKP Publishing Services.

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# Halal-organic Meat: A Successful Business and Humanitarian Model

Sheikh Ashiqurrahman Prince <sup>1</sup>, Ishraat Saira Wahid <sup>2</sup>

## ABSTRACT

This study develops a conceptual model that investigates how self-determination needs, religiosity, and features of halal-organic meat influence consumer satisfaction and meat purchasing behavior; these in turn affect healthy life expectancy, health- and food-related quality, and tranquility of life. In Bangladesh, a Muslim-majority country, organic meat producers usually sell halal meat without certifying or labeling it as such. According to the study, if meat producers market products that are both halal and organic, they will appeal to Muslim customers in religious and health-related contexts. This may lead to a significant increase in meat sales, thereby assisting more businesses in profits. The study used Purposive sampling to collect 985 data points from consumers who buy organic meat through four marketing channels: supermarkets, municipality corporate markets, open-air markets, and online markets. The data were analyzed using SmartPLS 3.0. The results confirm that five independent variables—autonomy, competency, relatedness, religiosity, and halal-organic food—directly and positively influence consumers' satisfaction with and continuance of halal-organic meat purchasing behavior. The study also suggests that consumer satisfaction positively impacts halal-organic meat-purchasing behavior. This positively and significantly influences three dependent variables: consumers' desire to maintain a healthy life expectancy, health- and food-related quality, and tranquility of life. The findings further indicate that halal-organic meat-purchasing behavior mediates the relationships between the study's five independent variables and three dependent variables. This study investigates the new, growing theory of self-determination in relation to organic and halal food-purchasing research, which few studies have investigated. Although the literature surrounding halal and organic meat is not new, this study is the first to combine these two fields into a distinct body of knowledge. Furthermore, this is the first study to introduce the constructs of tranquility and life expectancy in organic and halal food-purchasing behavioral research.

**Keywords:** Halal-organic meat, self-determination needs, religiosity, healthy life expectancy, health- and food-related quality of life, tranquility of life.

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus and Social Sciences Citation Index (SSCI).

Journal with Publisher Name: Humanities and Social Science Communications, Published by Springer Nature

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# Consumption Value and Organic Food Purchasing Behavior of Online Consumers

Sheikh Ashiqurrahman Prince <sup>1</sup>, Ishraat Saira Wahid <sup>2</sup>, Sayed Azharul Islam <sup>3</sup>

## ABSTRACT

This study examined how consumption value theory, religious knowledge, website quality, and e-satisfaction influence consumers' online organic food purchasing behavior. This study collected 989 data points from Bangladeshi online organic food consumers using convenience sampling and analyzed them using SPSS and PLS 4.0-SEM. The results indicate that apart from epistemic value all other consumption values, such as functional, emotional, social and conditional influence online organic food purchases through the mediating effect of religious knowledge, website quality and e-satisfaction. Consumption value is an emerging theory in organic food purchasing research, a new phenomenon in this context. The current study makes a groundbreaking contribution to theory development and contextualization. Consumption value theory has been studied in organic food purchase research predominantly in developed nations. By investigating the theory in the context of online organic food purchasing behavior in Bangladesh, this study validates its generalizability and adds to the existing body of knowledge. In addition, the mediating role of religious knowledge in the relationship between organic food purchasing intention and purchasing decision online has been given little attention by the previous literature. The study proposes several strategies for organic food marketers that would stimulate consumers' values and relevant context, encouraging them to buy more organic food online, and thus increase the development and profit of online organic food businesses, which is extremely important toward creating a healthy nation.

**Keywords:** Consumption Value Theory, Religious Knowledge, Website Quality, E-Satisfaction, Organic Food Purchase Online

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# Online Marketing Trends and Purchasing Intent: Advances in Customer Satisfaction through PLS-SEM and ANN Approach

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Abdullah Mohammed Ibrahim <sup>3</sup>, Shin-Hung Pan <sup>4</sup>, Md. Mominur Rahman <sup>5</sup>

## ABSTRACT

**Purpose** - The research aims to discern the factors of online marketing that influence consumer intention and enhance satisfaction, particularly in Bangladesh. **Methods** - The study uses quantitative data, targeting respondents from urban areas and cities from various socio-economic classes. This study uses a two-stage structural equation modeling-artificial neural network approach. Initially, the analysis utilized the PLS-SEM method to assess the structural model. Finally, the analysis used the ANN approach to check the robustness of the findings. **Results** - The study's findings reveal that convenience, comparison, ease of use, and variety-seeking significantly influence customer satisfaction in online shopping. Conversely, promotional activities and customer service were found to have less impact on customer satisfaction. Customers anticipate prompt and efficient service, and a failure to meet these expectations can strain the customer-seller relationship. **Practical implications** - This study presents an alternative business model without needing physical store visits. However, despite the growth of internet technology in Bangladesh and its potential to provide products and services at lower costs, convincing customers to shop online remains a challenge for online traders. **Originality** - This research offers a unique perspective on the dynamics of online marketing and consumer satisfaction in Bangladesh, shedding light on the factors that drive or deter online shopping in a developing nation using the two-staged SEM-ANN approach. This provides actionable knowledge for decision-makers in online service provision, aligning with the quantitative methodology's characteristic of Decision Sciences.

**Keywords:** Online marketing, Brand promotions, Consumer satisfaction, Purchasing intention.

Journal Category and Indexed: SJR: Q2 and Indexed in Scopus, PubMed

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## **FINANCE AND ACCOUNTING**



# Global, Local, or Glocal? Unravelling the Interplay of Geopolitical Risks and Financial Stress

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Veton Zeqiraj <sup>4,5</sup>

## ABSTRACT

Since the start of the previous decade, regionalization of trade and investment flows has led to complex coupling in local (country-level) and global risks. To-date, little is known about how global uncertainty interacts with local uncertainty across the financial systems. Our study investigates the nexus between global and country-specific Geopolitical Risks (GPRs) and financial stress index (FSI) in five highly-open, large developed economies. We employ the cross-quantilogram and cross-spectral quantile coherency approaches on weekly data over 2000–2022 to show heterogeneous dependency of local and global geopolitical uncertainty on the financial stress conditions. Specifically, our results show that in the U.S. and the UK dependency of local and global geopolitical uncertainty on the financial stress conditions is influenced by the varying market conditions. In contrast, Canadian FSI is intensified by both global and country-level geopolitical risks, whereas German and French financial systems exhibit significant resilience to the global and local geopolitical shocks. Hence, the latter markets show hedging properties vis-a-vis global geopolitical risks.

**Keywords:** Global and local GPR, Financial Stress Index, Open Economies, Cross-Quantilogram

Journal Category and Indexed: SJR: Q1, and Indexed in Scopus, Social Sciences Citation Index (SSCI)

Journal with Publisher Name: Journal of Multinational Financial Management, Published by ELSEVIER.

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# Greening Emerging Economies: Enhancing Environmental, Social, and Governance Performance through Environmental Management Accounting and Green Financing

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## ABSTRACT

Given the rising interest in sustainability globally, this paper investigates whether the environmental management accounting (EMA) and green financing of a firm are associated with superior environmental, social, and governance (ESG) performance, considering manufacturing firms from emerging economies like Bangladesh to address a gap in relevant research. Drawing on the perspective of contingency theory, this study is one of the first to analyze how EMA and green financing enable sustainable production to enhance ESG performance, as well as the mediation that sustainable production exerts on this relationship. This study entails an analysis of ESG performance in sensitive industries, i.e., those that are more likely to cause social and environmental damage. To test our hypotheses, we applied partial least squares path modeling to analyze data from 467 responses. Further, we used fuzzy set qualitative comparative analysis (fsQCA) to check the robustness. The results suggest that sensitive industries present superior ESG performance through integrating EMA and green financing. Further, empirical evidence demonstrates that sustainable production fully mediates the relationship between EMA and ESG performance. Meanwhile, sustainable production does not moderate green financing and ESG performance. For managers, this study demonstrates how embedding green financing and EMA into the organizational process for transitioning to a sustainable production model can present superior ESG performance. Our study contributes to research on both the impact of EMA and green financing on ESG performance, mediation effects of sustainable production, and integrated analysis using PLS-SEM and fsQCA, and the practice of sustainability management in firms in developing countries.

**Keywords:** ESG performance, sustainable production, environmental management accounting, green financing

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus, Social Sciences Citation Index (SSCI).

Journal with Publisher Name: Sustainability, Published by Multidisciplinary Digital Publishing Institute (MDPI).

To be cited:

Zhen, T. and Rahman, M.M., (2024). Greening Emerging Economies: Enhancing Environmental, Social, and Governance Performance through Environmental Management Accounting and Green Financing, Sustainability, 16(11), 4753.  
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# Assessing the Impact of Russian–Ukrainian Geopolitical Risks on Global Green Finance: A Quantile Dependency Analysis

Faroque Ahmed <sup>1,2</sup>, Md. Monirul Islam <sup>1,2</sup>, Shujaat Abbas <sup>1,3</sup>

## ABSTRACT

In the pursuit of sustainable development, the presence of a robust financial sector plays a crucial role in the advancement of the green movement. However, the green bond market faces vulnerability due to the existence of geopolitical threats. This study employs empirical methods to investigate the quantile dependence of geopolitical risks originating from Russia and Ukraine on green finance. Specifically, the cross-quantilogram and partial cross-quantilogram approaches are utilized, analyzing daily data spanning from February 24, 2022, to May 26, 2023. The findings obtained from the cross-quantilogram approach reveal a pronounced negative quantile dependence between the geopolitical risks of both countries and green finance during bearish market conditions (q.10–q.40) in the short-term memory. Conversely, during the initial memory, a strong positive dependence is observed at the bullish (q.70–q.95) market conditions. However, no significant dependence is detected at either bearish or bullish market states concerning long-term memory. Interestingly, when employing the partial cross-quantilogram approach, a slightly negative association is observed at both bearish and bullish market conditions for long-term memory. These empirical findings provide valuable insights into the decision-making process for green investments, taking into account the dynamic nature of market conditions influenced by geopolitical risks stemming from the Russia–Ukraine conflict. Therefore, it is prudent for the governments to establish collaborations with private sectors and international agencies to fund green projects, thereby expediting green investment and mitigating geopolitical risks, with a focus on long-term investment, given the current absence of significant long-term detrimental effects of geopolitical risks on green bonds at the global level.

**Keywords:** Green finance, Green bonds, Geopolitical risks, Russian geopolitical turmoil, Ukrainian geopolitical events, Cross-quantilogram analysis

Journal Category and Indexed: SJR: Q2, and Indexed in Scopus, Emerging Sources Citation Index (ESCI)

Journal with Publisher Name: Environmental Economics and Policy Studies, Published by Springer Nature.

To be cited:

Ahmed, F., Islam, M. M., & Abbas, S. (2024). Assessing the Impact of Russian–Ukrainian Geopolitical Risks on Global Green Finance: A Quantile Dependency Analysis. *Environmental Economics and Policy Studies*, 1–27. <https://doi.org/10.1007/s10018-024-00395-3>

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# Roles of Public Financing to Address Urban Faecal Sludge Management (FSM) Services in Bangladesh: A Study of Dhaka and Faridpur Cities

Mowshumi Sharmin <sup>1</sup>, Ghulam Murtaza <sup>2</sup>, Rafiul Islam <sup>3</sup>

## ABSTRACT

Prior to adopting Sustainable Development Goals (SDGs), Bangladesh achieved 100% access to sanitation by 2015 mostly by on-site sanitation systems (OSSs). The major drawbacks of the OSSs are the deposition of the Faecal Sludge (FS) underground and environmental pollution due to the indiscriminate disposal of FS. As an overpopulated country, 40% out of 162 million people live in urban areas. However, the national planning process; the Five-Year Planning (FY 2016-20) did not put emphasis on the Faecal Sludge Management (FSM). Major policies also did not address FSM though there are various policies relevant to promote safe sanitation. Against this backdrop, it is difficult to manage the second-generation sanitation challenge like FSM services for the enormously growing urban population. However, to achieve the target of sustainable sanitation (SDG 6.2), the country needs much attention to address the FSM services with a huge public investment to build necessary infrastructures and initiate service delivery by involving stakeholders. This study investigated the role of public finance in addressing urban FSM services in two urban centers: Dhaka and Faridpur. The current public financing addressed FSM service for 39% of inhabitants in Faridpur; while in Dhaka, FSM service is very negligible and Dhaka Water Supply and Sewerage Authority (DWASA) is facilitating only the emptying service by engaging the private enterprises and NGOs shows a resource gap for FSM financing. Lack of institutional coordination, role clarity on service delivery, service provisioning, capacity, leadership, and inappropriate resource sharing among the utilities are the key challenges. The study has drawn a set of public financing mechanisms to achieve urban FSM service.

**Keywords:** Desludging, faecal sludge management, institutional and regulatory framework, on-site, public finance, sanitation system, urbanization

Journal Category and Indexed: SJR: Q4 and Indexed in Scopus

Journal with Publisher Name: The Journal of Solid Waste Technology and Management, Published by International Society of Waste Management, Air and Water (ISWMAW)

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Paper Link: <https://www.ingentaconnect.com/contentone/jswt/jswt/2023/00000049/00000002/art00007?crawler=true&mimetype=application/pdf>

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# Unveiling the Impact on Corporate Social Responsibility through Green Tax and Green Financing: A PLS-SEM Approach

Bishawjit Chandra Deb <sup>1</sup>, Md. Mominur Rahman <sup>2</sup>, Mohammad Haseeb <sup>3</sup>

## ABSTRACT

In today's global business landscape, the concepts of green financing and green tax have become pivotal instruments for fostering environmentally responsible practices. The purpose of this study is to comprehensively assess how green financing and green tax collectively influence CSR through various dimensions, including employees, customers, and communities. This research employs a partial least squares structural equation modeling (PLS-SEM) approach, which allows for a rigorous analysis of the complex relationships between the variables involved. Data is collected through surveys, enabling a quantitative evaluation of the impacts and interdependencies. The results indicate that green financing has a positive and significant impact on CSR through customer ( $\beta = 0.609$ ), employee ( $\beta = 0.522$ ), and community ( $\beta = 0.509$ ) dimensions. The results also show that green tax has a positive and significant impact on CSR through customer ( $\beta = 0.183$ ), employee ( $\beta = 0.182$ ), and community ( $\beta = 0.296$ ) dimensions. The findings of this study provide a deeper understanding of how green financing and green tax practices correlate with CSR, both separately and collectively. The implications of this research extend to multiple stakeholders. For businesses, the results offer strategic insights into how environmentally conscious financial practices align with CSR objectives. Policymakers can draw upon the findings to craft effective regulatory frameworks that incentivize sustainable business behavior. Additionally, stakeholders gain valuable insights into how businesses can harmonize economic success with environmental stewardship, promoting engagement with socially responsible entities. This research marks a distinct contribution to the academic landscape by delving into the synergistic impact of green financing and green tax on CSR, particularly within the distinctive context of Bangladesh. In doing so, it successfully addresses a noticeable void within the existing literature, providing fresh insights into the intricate dynamics and opportunities confronting businesses in developing nations.

**Keywords:** CSR, green tax, green finance

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus.

Journal with Publisher Name: Environmental Science and Pollution Research, Published by Springer.

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# Moderating Effects of Energy Poverty on Financial Inclusion, Fintech Lending, and Economic Growth: Evidence From fsQCA, NCA, and Econometric Models

Md. Mominur Rahman <sup>1</sup>

## ABSTRACT

In the backdrop of ongoing global efforts toward sustainable development, understanding the intricate dynamics shaping economic growth is crucial. The study aims to comprehensively examine the interplay between financial inclusion, FinTech lending, energy poverty, and economic growth, with a specific focus on the moderating effects of energy poverty. This study adopts a mixed-methods approach, utilizing fsQCA and NCA for qualitative assessments and a range of econometric models, including Pooled OLS, Fixed Effects, Random Effects, 2SLS, and 2 Step System GMM, for quantitative analyses. The fsQCA and NCA provide in-depth insights into sufficiency and necessity conditions, while econometric models offer robustness checks with quantitative validation. The study finds that high access to electricity leads to less energy poverty that moderates the impact of financial inclusion on economic growth. Further, the study reveals that energy poverty moderates the influence of FinTech lending on economic growth. The fsQCA and NCA results suggest that energy poverty is a sufficient and necessary moderator for high economic growth. Further, the econometric models show that digital financial inclusion with less access to electricity may hamper economic growth. Further, FinTech lending has positively influenced economic growth. Finally, energy poverty as a moderator of financial inclusion and economic growth, as well as FinTech lending and economic growth is evident across the econometric models. While the impact of financial inclusion on economic growth is investigated thoroughly, the moderating impact of energy poverty is unique in this study. Additionally, the hybrid methodology applied in this study is original in investigating the complex nexus between financial inclusion, FinTech lending, energy poverty, and economic growth. The structural change theory, particularly in energy usage and financial systems, is central to the study's theoretical framework that suggests sound interaction effects of energy poverty with financial inclusion and FinTech lending leads to stronger positive economic growth. Thus, practically, the study underscores the significance of prioritizing energy infrastructure investments and tailoring financial inclusion initiatives to sustainable economic development, offering valuable insights for policymakers, researchers, and practitioners.

**Keywords:** Energy poverty, Financial inclusion, FinTech lending, Economic growth.

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus, PubMed

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# **The Effect of Audit Committee Expertise on Audit Quality: Empirical Evidence from Bangladesh**

Md. Mominur Rahman <sup>1</sup>

## **ABSTRACT**

The purpose of this study is to examine the effects of diverse expertise types on audit quality, providing valuable insights for corporate governance and enhancing the audit process. This research uses 651 firm-year observations for 2001-2021 year. This research applies Breusch-Pagan LM, Pesaran Scaled LM, Bias-corrected Scaled LM, and Pesaran CSD test to check the cross-sectional dependency of the series. The study uses second generation panel unit root tests to check the stationarity of the variables. After applying the panel cointegration test, this study uses the long run estimation model and robustness checking to examine the relationship. The findings reveal that financial, accounting, and non-accounting expertise all positively and significantly affect audit quality, suggesting that audit committees with diverse expertise can effectively enhance the audit process. This study finds single causal indicating that audit committee expertise improves audit quality. This study emphasizes the importance of incorporating experts from various backgrounds on audit committees to improve audit quality and increase stakeholder confidence in financial statements. This study implies that companies must focus on the expertise on the audit committee during the appointment of the members to maintain the quality of audit reports. This research is unique to the existing literature on audit committee expertise and audit quality by examining the influence of accounting and non-accounting expertise types in Bangladesh context and providing empirical evidence in support of the agency theory.

**Keywords:** Audit Committee, Audit Quality, Corporate Governance, Big 4, Digital Auditing

Journal Category and Indexed: SJR: Q2 and Indexed in Scopus, PubMed.

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# **DATA SCIENCE, AI, AND MACHINE LEARNING**





# Semi-Supervised Machine Learning Method for Predicting Observed Individual Risk Preference Using Gallup Data

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## ABSTRACT

Risk and uncertainty play a vital role in almost every significant economic decision, and an individual's propensity to make riskier decisions also depends on various circumstances. This article aims to investigate the effects of social and economic covariates on an individual's willingness to take general risks and extends the scope of existing works by using quantitative measures of risk-taking from the GPS and Gallup datasets (in addition to the qualitative measures used in the literature). Based on the available observed risk-taking data for one year, this article proposes a semi-supervised machine learning-based approach that can efficiently predict the observed risk index for those countries/individuals for years when the observed risk-taking index was not collected. We find that linear models are insufficient to capture certain patterns among risk-taking factors, and non-linear models, such as random forest regression, can obtain better root mean squared values than those reported in past literature. In addition to finding factors that agree with past studies, we also find that subjective well-being influences risk-taking behavior.

**Keywords:** Socio demographic factors, financial risk preference, ordinary least-square, supervised machine learning, social and economic covariates, general risks

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Journal with Publisher Name: Mathematical and Computational Applications, Published by Multidisciplinary Digital Publishing Institute (MDPI).

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Ahmed F, Shamsuddin M, Sultana T, Shamsuddin R. (2024). Semi-Supervised Machine Learning Method for Predicting Observed Individual Risk Preference Using Gallup Data, *Mathematical and Computational Applications*, 29(2), 21.

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# Analyzing Volatility of Dhaka Stock Exchange (DSE) with Historical Events around Breakpoints: ICSS Algorithm Approach

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## ABSTRACT

This paper inspects the types of incidence that lead to the hefty changes in the volatility of Dhaka Stock Exchange (DSE). We identify when the bulky shifts in the volatility of DSE returns takes place and then determine the local events at the time of change in volatility. An Iterated Cumulative Sum of Squares (ICSS) algorithm is used to detect the points of abrupt quakes in the variance of returns. DSE General Index & DSE Broad Index daily data are combinedly collected from 1st January, 2003 to 29 July, 2019. Our contribution is to detect each point of changes in the volatility. Then the study sightsees around the events and policy regime over those detected periods. The findings help the policy makers to modify and execute discussed rules and regulations in order to avoid such collapses in future.

**Keywords:** Dhaka Stock market, Volatility, ICSS algorithm, DSE, GARCH, Historical Break Points

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Paper Link: <http://www.europeanjournalofscientificresearch.com>

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# Downscaling Epidemiological Time Series Data for Improving Forecasting Accuracy: An Algorithmic Approach

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## ABSTRACT

Data scarcity and discontinuity are common occurrences in the healthcare and epidemiological dataset and often is needed to form an educative decision and forecast the upcoming scenario. Often to avoid these problems, these data are processed as monthly/yearly aggregate where the prevalent forecasting tools like Autoregressive Integrated Moving Average (ARIMA), Seasonal Autoregressive Integrated Moving Average (SARIMA), and TBATS often fail to provide satisfactory results. Artificial data synthesis methods have been proven to be a powerful tool for tackling these challenges. The paper aims to propose a novel algorithm named Stochastic Bayesian Downscaling (SBD) algorithm based on the Bayesian approach that can regenerate downscaled time series of varying time lengths from aggregated data, preserving most of the statistical characteristics and the aggregated sum of the original data. The paper presents two epidemiological time series case studies of Bangladesh (Dengue, Covid-19) to showcase the workflow of the algorithm. The case studies illustrate that the synthesized data agrees with the original data regarding its statistical properties, trend, seasonality, and residuals. In the case of forecasting performance, using the last 12 years data of Dengue infection data in Bangladesh, we were able to decrease error terms up to 72.76% using synthetic data over actual aggregated data.

**Keywords:** Epidemiology, Downscaling Algorithm, Temporal Downscaling, ARIMA, Fourier-ARIMA, Dengue, COVID-19

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus

Journal with Publisher Name: PLoS ONE, Published by the Public Library of Science (PLOS).

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# Weighted Rank Difference Ensemble: A New Form of Ensemble Feature Selection Method for Medical Datasets

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Joarder Kamruzzaman <sup>3</sup>

## ABSTRACT

**Background:** Feature selection (FS), a crucial preprocessing step in machine learning, greatly reduces the dimension of data and improves model performance. This paper focuses on selecting features for medical data classification. **Methods:** In this work, a new form of ensemble FS method called weighted rank difference ensemble (WRD-Ensemble) has been put forth. It combines three FS methods to produce a stable and diverse subset of features. The three base FS approaches are Pearson's correlation coefficient (PCC), reliefF, and gain ratio (GR). These three FS approaches produce three distinct lists of features, and then they order each feature by importance or weight. The final subset of features in this study is chosen using the average weight of each feature and the rank difference of a feature across three ranked lists. Using the average weight and rank difference of each feature, unstable and less significant features are eliminated from the feature space. The WRD-Ensemble method is applied to three medical datasets: chronic kidney disease (CKD), lung cancer, and heart disease. These data samples are classified using logistic regression (LR). **Results:** The experimental results show that compared to the base FS methods and other ensemble FS methods, the proposed WRD-Ensemble method leads to obtaining the highest accuracy value of 98.97% for CKD, 93.24% for lung cancer, and 83.84% for heart disease. **Conclusion:** The results indicate that the proposed WRD-Ensemble method can potentially improve the accuracy of disease diagnosis models, contributing to advances in clinical decision-making.

**Keywords:** Feature selection, PCC, GR, reliefF, chronic kidney disease (CKD), lung cancer

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## Discovering Tourist Preference for Electing Destinations: A Pattern Mining Based Approach

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Sanjita Akter <sup>4</sup>, Anwaar Ulhaq <sup>5</sup>

### ABSTRACT

Awareness and access to information on travel benefits may bear importance for tourist preference in selecting popular destination. Tourism businesses are continuously exploring to improve their competitive advantage and offering an effective method for assisting tourist in electing their preferred destinations. However, current studies are still at an emergent stage. This paper presents a tourists preferences dataset and introduces preference pattern mining (PPM) method as a solution framework for discovering tourist spots. Our PPM method finds and validates the most active tourist hot spots from tourist preferences dataset. The proposed framework facilitates an unbiased approach for optimal tourism destination management in tourism-friendly countries.

**Keywords:** Destination spots, tourist, preference, pattern mining, tourism management, destination management, tourist behaviour

Journal Category and Indexed: SJR: Q1, ABDC: A and Indexed in Scopus, Social Science Citation Index (SSCI).

Journal with Publisher Name: Asia Pacific Journal of Tourism Research, Published by Taylor & Francis, Routledge

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# Performance of Non-Defragmentation and Batch Processing Based Proactive Fragmentation Management Scheme in Elastic Optical Networks

Abdul Wadud <sup>1,3</sup>, Eiji Oki <sup>2</sup>, Bijoy Chand Chatterjee <sup>3</sup>

## ABSTRACT

Fragmentation occurs in elastic optical networks (EONs) due to dynamic lightpath assignment and tearing down in the network, which is considered as one of the major challenging issues for resource allocation. It is difficult to utilize fragmented slots in the network during the allocation process. Therefore, it is necessary to manage and suppress fragmented slots in the network. This work presents a non-defragmentation and batch processing-based proactive fragmentation management routing and spectrum allocation (BPBP-RSA) scheme in EONs. The presented scheme creates batches of incoming lightpath requests before establishing them to the network and allocates requests belonging to each batch sequentially. Since we do not take any action or rearrange any slot after request allocation and complete all the processes before allocation, we consider the presented scheme as non-defragmentation and proactive. We consider a traditional first-fit routing and spectrum allocation (FF-RSA) as a benchmark and compare BPBP-RSA with FF-RSA. Numerical results ensure that the presented BPBP-RSA scheme outperforms the traditional FF-RSA scheme in terms of blocking probability and traffic admissibility. The presented BPBP-RSA scheme allocates 28.5% more traffic than that of the traditional FF-RSA scheme when the blocking probability is considered 1% in the network.

**Keywords:** Fragmentation, Routing and Spectrum allocation, Elastic optical networks.

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## **COMMUNICATION AND NETWORKING**





# QACM: QoS-Aware xApp Conflict Mitigation in Open RAN

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## ABSTRACT

The advent of Open Radio Access Network (RAN) has revolutionized the field of RAN by introducing elements of native support of intelligence and openness into the next generation of mobile network infrastructure. Open RAN paves the way for standardized interfaces and enables the integration of network applications from diverse vendors, thereby enhancing network management flexibility. However, control decision conflicts occur when components from different vendors are deployed together. This article provides an overview of various types of conflicts that may occur in Open RAN, with a particular focus on intra-component conflict mitigation among Extended Applications (xApps) in the Near Real Time RAN Intelligent Controller (Near-RT-RIC). A QoS-Aware Conflict Mitigation (QACM) method is proposed that finds the optimal configuration of conflicting parameters while maximizing the number of xApps that have their Quality of Service (QoS) requirements met. We compare the performance of the proposed QACM method with two benchmark methods for priority and non-priority cases. The results indicate that our proposed method is the most effective in maintaining QoS requirements for conflicting xApps.

**Keywords:** Open RAN, Prevention and mitigation, Quality of service, Radio access networks, Benchmark testing, Computer architecture, Taxonomy

Journal Category and Indexed: SJR: Q1 and Indexed in Science Citation Index Expanded (SCIE)

Journal with Publisher Name: IEEE Transactions on Green Communications and Networking, Published by IEEE.

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# Systematic Review of Deep Learning Solutions for Malware Detection and Forensic Analysis in IoT

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Ahsan Wajahat <sup>1</sup>, Faheem Ullah <sup>1</sup>, Abdul Wadud <sup>2, 3</sup>

## ABSTRACT

The swift proliferation of Internet of Things (IoT) devices has presented considerable challenges in maintaining cybersecurity. As IoT ecosystems expand, they increasingly attract malware attacks, necessitating advanced detection and forensic analysis methods. This systematic review explores the application of deep learning techniques for malware detection and forensic analysis within IoT environments. The literature is organized into four distinct categories: IoT Security, Malware Forensics, Deep Learning, and Anti-Forensics. Each group was analyzed individually to identify common methodologies, techniques, and outcomes. Conducted a combined analysis to synthesize the findings across these categories, highlighting overarching trends and insights. This systematic review identifies several research gaps, including the need for comprehensive IoT-specific datasets, the integration of interdisciplinary methods, scalable real-time detection solutions, and advanced countermeasures against anti-forensic techniques. The primary issue addressed is the complexity of IoT malware and the limitations of current forensic methodologies. Through a robust methodological framework, this review synthesizes findings across these categories, highlighting common methodologies and outcomes. Identifying critical areas for future investigation, this review contributes to the advancement of cybersecurity in IoT environments, offering a comprehensive framework to guide future research and practice in developing more robust and effective security solutions.

**Keywords:** IoT malware detection, Forensics techniques, Anti-forensics, Malware forensic analysis

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# Performance and Challenges of Bi-Directional Resource Allocation in Multi-Core Space Division Multiplexing Elastic Optical Networks

Abdul Wadud <sup>1</sup>, Anas Basalamah <sup>2</sup>

## ABSTRACT

In space division multiplexing-elastic optical networks (SDM-EONs), crosstalk and fragmentation are the significant factors determining overall resource utilization. Crosstalk and fragmentation management spectral resource allocation schemes can enhance the overall resource utilization in SDM-EONs. This paper proposes three crosstalk and fragmentation management bi-directional resource allocation schemes for multi-core SDM-EONs to suppress inter-core crosstalk and network fragmentation. A spatial resource partitioning method is presented to mitigate inter-core crosstalk, and this paper adopts a k-shortest path routing method to suppress fragmentation while spectral resource allocation. To the best of our knowledge, there is no such scheme that handles both crosstalk and fragmentation together while allocating spectral resources in a counter-propagating manner for multi-core fiber (MCF) SDM-EONs. The estimated result shows that the proposed scheme outperforms the traditional co-propagation method and enhances existing resource utilization by reducing blocked requests.

Journal Category and Indexed: SJR: Q2 and Indexed in Science Citation Index Expanded (SCIE)

Journal with Publisher Name: Journal of Optical Switching and Networking, Published by Elsevier

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# Exploring the Behavior of App Developers and the Future of Digital Bangladesh

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## ABSTRACT

In 2009, the government of Bangladesh formulated a vision named as the “Vision 2021”. The main goal of the vision was to digitalize the services for bringing up them in front of people and make Bangladesh a middle-income country within 2021. As part of digitalization, the ministry of ICT Division of Bangladesh took projects for creating mobile apps for public services. Unfortunately, these apps are not currently working; only 100 apps were available in the play store at the time of data collection. This paper explores the behavior of app developers for understanding – why they are not working for the public services and removed from the play store. Data on app duration, size, update, download, and rating were collected from 100 government and 294 non-government apps in the Google Play Store on 15 October 2017. The analysis shows that the average rating of government apps is less than that of the apps developed by individual developers. Primarily, the causes are observed that the size and number of updates of the government apps are less than that of non-government. It is also observed that app size and number of its updates accelerate app rating and increase its usability. However, these are not the root causes; the study has identified the main cause that an aggressive developer developed the government apps of Bangladesh. This aggressive behavior of app development must underestimate the future of Digital Bangladesh, for example.

**Keywords:** Vision 2021, Digital Bangladesh, Mobile Apps, Government, Nongovernment and Aggressive Developers.

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# Bioinformatics and System Biological Approaches for the Identification of Genetic Risk Factors in the Progression of Cardiovascular Disease

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## ABSTRACT

Cardiovascular disease (CVD) is the combination of coronary heart disease, myocardial infarction, rheumatic heart disease, and peripheral vascular disease of the heart and blood vessels. It is one of the leading deadly diseases that causes one-third of the deaths yearly in the globe. Additionally, the risk factors associated with it make the situation more complex for cardiovascular patients, which lead them towards mortality, but the genetic association between CVD and its risk factors is not clearly explored in the global literature. We addressed this issue and explored the linkage between CVD and its risk factors. Methods. We developed an analytical approach to reveal the risk factors and their linkages with CVD. We used GEO microarray datasets for the CVD and other risk factors in this study. We performed several analyses including gene expression analysis, diseasome analysis, protein-protein interaction (PPI) analysis, and pathway analysis for discovering the relationship between CVD and its risk factors. We also examined the validation of our study using gold benchmark databases OMIM, dbGAP, and DisGeNET. Results. We observed that the number of 32, 17, 53, 70, and 89 differentially expressed genes (DEGs) is overlapped between CVD and its risk factors of hypertension (HTN), type 2 diabetes (T2D), hypercholesterolemia (HCL), obesity, and aging, respectively. We identified 10 major hub proteins (FPR2, TNF, CXCL8, CXCL1, IL1B, VEGFA, CYBB, PTGS2, ITGAX, and CCR5), 12 significant functional pathways, and 11 gene ontological pathways that are associated with CVD. We also found the connection of CVD with its risk factors in the gold benchmark databases. Our experimental outcomes indicate a strong association of CVD with its risk factors of HTN, T2D, HCL, obesity, and aging. Conclusions. Our computational approach explored the genetic association of CVD with its risk factors by identifying the significant DEGs, hub proteins, and signaling and ontological pathways. The outcomes of this study may be further used in the lab-based analysis for developing the effective treatment strategies of CVD.

Journal Category and Indexed: SJR: Q2 and Indexed in Science Citation Index Expanded (SCIE)

Journal with Publisher Name: Journal of Cardiovascular Therapeutics, Published by Wiley Online Library

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## **COVID-19 PANDEMIC**





# The Impact of the Stimulus Packages on the Economy during COVID-19 in Bangladesh: A Mixed-Method Approach

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## ABSTRACT

With the unexpected onset of COVID-19, governments across the world responded with a range of preventive measures, including the imposition of lockdowns. To mitigate the adverse effects of lockdowns arising from supply chain shocks and employment loss, governments worldwide chose to implement policies to stimulate their economies and keep them working. This study assesses the impact and effectiveness of four of these packages in Bangladesh, employing a mixed-method approach. These packages include “salary support for workers in export-oriented RMG industries”, “working capital loans for affected industries and service sectors”, “working capital loans for cottage, micro, small, and medium enterprises”, and initiatives for “revitalizing the rural economy and job creation”. Each package was examined individually because of their differences in beneficiary groups, implementation methods, and individual objectives. Quantitative analysis involved propensity score matching (PSM), the difference in difference model (DID), and structural equation modelling (SEM). Stakeholders, including policy implementers, Bangladesh Bank officials, policy analysts, academics, workers, and beneficiaries, contributed to the qualitative analysis through extensive key-informant interviews, providing a comprehensive assessment of intervention outcomes. Ultimately, the results show that the packages achieved their socio-economic relief objectives for beneficiaries. The research examined both positive impacts and challenges in their implementation. It suggests that all four packages successfully achieved their goals, such as providing social and economic support, sustaining livelihoods, addressing marginalized groups’ needs, ensuring survival for large industries and small businesses, and promoting employment. In order to better address future shocks, establishing a beneficiary database integrated with the national system is recommended for smoother policy rollout. Despite acknowledged limitations, including challenges in beneficiary identification, data availability, and time constraints, the study’s unbiased estimations provide valuable insights to guide future policy directions in similar situations.

**Keywords:** COVID-19, economic downturn, stimulus packages, beneficiaries, pandemic, policy, government, financing, workforce, recovery, outcomes, challenges

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus

Journal with Publisher Name: Economies, Published by Multidisciplinary Digital Publishing Institute (MDPI).

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## Impacts of Covid-19 Pandemic on National Security Issues: Indonesia as a Case Study

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### ABSTRACT

The national security issues in particular non-traditional security issues such as law enforcement, health, food, supply chain management, industry etc. are severely impacted by the COVID-19 outbreak in all countries of the world. As such, the developing country like Indonesia has largely been suffering from this epidemic. In this context, this paper attempts to analyse some national security issues that are affecting Indonesia, which is currently struggling with the COVID-19 pandemic. Proposed here are policy measures to combat both present and future challenges. The study uses secondary data collected from different sources concerning COVID-19 pandemic and security issues of Indonesia. The study analyses the data based on descriptive statistics, highlighting the impact of the COVID-19 pandemic on Indonesian law enforcement issues, and security of health, food, supply chain management, industrial and other economic sectors. The study argues that if the vulnerability continues in these security-related issues due to pandemic, the country will face a harsh reality to manage the state-affairs. Therefore, the policy options are mainly concerned with the COVID-19 issue. Indonesia's government should identify what measures to take by conducting rapid diagnostics and polymerase chain reaction tests in the laboratory, respectively. Moreover, the government and relevant stakeholders need to develop strategies that break the stranglehold of COVID-19 transmission in order to resolve Indonesian national security concern.

**Keywords:** COVID-19, Law enforcement, Health security, Economic security, Social security, Food security, Supply chain management

Journal Category and Indexed: SJR: Q1 and Indexed in Social Sciences Citation Index (SSCI)

Journal with Publisher Name: Security Journal, Published by Springer

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Paper Link: <https://pmc.ncbi.nlm.nih.gov/articles/PMC8493045/>

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# How the Covid-19 Lockdown Affects Social Relationships in Bangladesh: A Social Media- Based Cross-Sectional Study

Sima Rani Dey <sup>1</sup>

## ABSTRACT

For controlling the rapid spread of COVID-19 infections, the Bangladesh Government imposed lockdown to ensure social distancing among the mass. The study aimed to investigate the effect of COVID-19 lockdown on social relationships among Bangladeshi nationals. A social media-based cross-sectional study was conducted from May 15 through June 7, 2020. The study used a survey questionnaire to ascertain the people's perception on COVID-19 pandemic and its associated lockdown, and on how the lockdown affected their social relationships. In this study, social relationships referred to the connections between family members, friends, and relatives. Linear regression was employed to determine the predictors of social relationships. A total of 352 survey responses were collected, out of which 64.2 per cent reported that their social relationships became stronger during lockdown. Age, marital status, occupation, and financial condition exhibited significant associations with social relationships. More specifically, young through middle-aged, married, housewives, and financially solvent people had a significant association with having strong social relationships. This study found that the COVID-19 lockdown revealed a positive impact on the social relationships of Bangladeshis. Healthy bonding and cordial support of family and friends are understood to have helped them to mitigate their mental stress, leading to positive health implications.

Journal Category and Indexed: SJR: Q3

Journal with Publisher Name: International Social Science Journal, Published by Willey

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Dey, S. R. (2022). How the Covid-19 Lockdown Affects Social Relationships in Bangladesh: A Social Media- Based Cross-Sectional Study. International Social Science Journal, 72(245), 887-903. <https://doi.org/10.1111/issj.12340>

Paper Link: <https://onlinelibrary.wiley.com/doi/abs/10.1111/issj.12340>

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# Healthcare Capacity, Health Expenditure and Civil Society as Predictors of Covid-19 Case Fatalities: A Global Analysis

Jahidur Rahman Khan <sup>1,2</sup>, Nabil Awan <sup>3,4</sup>, Md. Mazharul Islam <sup>5</sup>, Olav Muurlink <sup>6</sup>

## ABSTRACT

**Background:** The rapid growth in cases of COVID-19 has challenged national healthcare capacity, testing systems at an advanced ICU, and public health infrastructure level. This global study evaluates the association between multi-factorial healthcare capacity and case fatality of COVID-19 patients by adjusting for demographic, health expenditure, population density, and prior burden of non-communicable disease. It also explores the impact of government relationships with civil society as a predictor of infection and mortality rates. **Methods:** Data were extracted from the Johns Hopkins University database, World Bank records and the National Civic Space Ratings 2020 database. This study used data from 86 countries which had at least 1,000 confirmed cases on 30th April 2020. Negative binomial regression model was used to assess the association between case fatality (a ratio of total number of confirmed deaths to total number of confirmed cases) and healthcare capacity index adjusting for other covariates. **Findings:** Regression analysis shows that greater healthcare capacity was related to lesser case-fatality [incidence rate ratio (IRR) 0.5811; 95% confidence interval (CI) 0.4727–0.7184;  $p < 0.001$ ] with every additional unit increase in the healthcare capacity index associated with a 42% decrease in the case fatality. Health expenditure and civil society variables did not reach statistical significance but were positively associated with case fatalities. **Interpretation:** Based on preliminary data, this research suggests that building effective multidimensional healthcare capacity is the most promising means to mitigate future case fatalities. The data also suggests that government's ability to implement public health measures to a degree determines mortality outcomes.

Journal Category and Indexed: SJR: Q2 and Indexed in Social Sciences Citation Index (SSCI)  
Journal with Publisher Name: Frontiers in Public Health, Published by Frontiers Media S.A.

To be cited:

Khan, J. R., Awan, N., Islam, M. M., & Muurlink, O. (2020). Healthcare Capacity, Health Expenditure and Civil Society as Predictors of Covid-19 Case Fatalities: A Global Analysis. *Frontiers in public health*, 8, 347, <https://doi.org/10.3389/fpubh.2020.00347>

Paper Link: <https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2020.00347/full>

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# Fighting Ahead: Adoption of Social Distancing in COVID-19 Outbreak Through the Lens of Theory of Planned Behavior

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## ABSTRACT

This study, being explorative, aims to identify the antecedents of social distancing behavior among people in a collective society, in Bangladesh. Based on the social-psychological behavioral model, i.e. theory of planned behavior (TPB), the current study incorporates attitudes, subjective norms, perceived behavioral control, and behavioral intention to assess their influence on actual social distancing behavior. The present study followed the deductive reasoning approach to conduct the research. A self-administered questionnaire was utilized to collect data from 331 respondents through social networks purposively and later analyzed using SPSS-21 and AMOS-20 to test the hypotheses. The results revealed that attitude toward social distancing, social pressure, and perceived control to social distance significantly influence the intention to maintain social distance. The core finding is that perceived behavioral control (directly and indirectly) is the most profound antecedent followed by subjective norms of both intention and actual social distancing behavior. We conclude by providing policy implications for policymakers and health concerns to focus on upholding the attitudinal awareness, normative beliefs, and self-control approach of people for maintaining social distance and behave proactively to contain the outbreak, as well as potential notes for further research.

**Keywords:** COVID-19, social distancing behavior, psycho-social factors, theory of planned behavior

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus, Emerging Sources Citation Index (ESCI).

Journal with Publisher Name: Journal of Human Behavior in the Social Environment, Published by Taylor & Francis.

To be cited:

Das, A. K., Abdul Kader Jilani, M. M., Uddin, M. S., Uddin, Md. A., Ghosh, A. K. (2021). Fighting Ahead: Adoption of Social Distancing in COVID-19 Outbreak Through the Lens of Theory of Planned Behavior, Journal of Human Behavior in the Social Environment, 31(1–4), 373–393, <https://doi.org/10.1080/10911359.2020.1833804>

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## Creative Social Media Use for Covid-19 Prevention in Bangladesh: A Structural Equation Modeling Approach

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### ABSTRACT

In recent years, information dissemination has been quicker than earlier years with the sky-high development of diverse social media platforms, e.g., Facebook, WhatsApp, Twitter, YouTube and so on, which are more used in creative production. This advancement of social media disclosures has numerous merits and demerits to prevent and control contagious diseases like the Covid-19 pandemic. In this respect, this research scrutinizes the role of creative social media use in preventing the Covid-19 outbreak in Bangladesh utilizing the structural equation modeling (SEM) approach. To this end, this study uses an online survey from June to October 2020 engaging 265 (N = 265) Bangladeshi people as respondents at different ages. The study results establish that creative social media use helps enhance the knowledge of Covid-19 precautions online, and this pertinent knowledge contributes to preventing Covid-19 outbreak in Bangladesh. It implies that creative social media use has a significant indirect effect on Covid-19 prevention, whereas knowledge of Covid-19 precautions online mediates this relationship between creative social media use and Covid-19 prevention. The results also discover that the educational level of the people has a significant direct and positive impact on Covid-19 prevention. Therefore, the study suggests more creative use of social media in preventing the spread of the Covid-19 epidemic in Bangladesh.

**Keywords:** Creative social media use, Knowledge of Covid-19 precautions online, Covid-19 prevention, SEM approach, Bangladesh

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus, Emerging Sources Citation Index (ESCI)

Journal with Publisher Name: Social Network Analysis and Mining, Published by Springer Nature.

To be cited:

Islam, M.M., Islam, M.M., Ahmed, F. et al., (2021). Creative Social Media Use for Covid-19 Prevention in Bangladesh: A Structural Equation Modeling Approach, Soc. Netw. Anal. Min, 11, 38, <https://doi.org/10.1007/s13278-021-00744-0>

Paper Link: <https://link.springer.com/article/10.1007/s13278-021-00744-0>

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# Integration of Theory of Planned Behavior into Actual Social Distancing Behavior amid Covid-19

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Moslehuddin Chowdhury Khaled <sup>4</sup>

## ABSTRACT

In the initial days of the COVID-19 pandemic, the most effective way to minimize the COVID risk was maintaining 'social distancing.' In places, where vaccinations are still not easily accessible, this is still the most valid preventive measure. This work investigated whether attitude, subjective norm, behavioral control, behavioral intention to social distancing (SD) and actual maintenance of social distancing using the theory of planned behavior framework. The present study applied a deductive reasoning approach to applying the SPSS tool for quantitative techniques. Three hundred thirty-one people participated in a self-administered survey, which was utilized to gather data. The study found significant correlations among attitude to SD, subjective norms, behavioral control of SD, intention to SD and actual social distancing. In logistic regression analysis, behavioral control and intention to social distance profoundly affect the actual use of social distancing except for attitude and subjective norms. Given the data, the TPB model's goodness of fit and accuracy indices based on log-linear ratio, Cox and Snell's and Nagelkerke's R<sup>2</sup> is 22.47%, 26.69%, and 35.64%, respectively. The insights generated will help public health policymakers in improving attitudes, subjective norms, and behavioral intentions to enhance social distancing in epidemic crises.

**Keywords:** Social distancing, Theory of planned behavior, Actual behavior, COVID-19 outbreak

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus.

Journal with Publisher Name: Social Sciences & Humanities Open, Published by ScienceDirect, ELSEVIER

To be cited:

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# Strengthening the Trialability for the Intention to Use of mHealth Apps amidst Pandemic: A Cross-Sectional Study

Munshi Muhammad Abdul Kader Jilani <sup>1</sup>, Md. Moniruzzaman <sup>2, 3</sup>, Mouri Dey <sup>4</sup>,  
Edris Alam <sup>5, 6</sup>, Md. Aftab Uddin <sup>7</sup>

## ABSTRACT

Recent advancements in mHealth apps and services have played a vital role in strengthening healthcare services and enabling their accessibility to marginalized people. With the alarming rise in COVID-19 infection rates around the world, there appears to be an urgent call to modernize traditional medical practices to combat the pandemic. This study aims to investigate the key factors influencing the trialability of mHealth apps/services and behavioral intention to adopt mobile health applications. The study also examines the moderating effects of self-discipline motivation, knowledge, and attitude on the relationship between trialability and behavioral intention to use. The deductive reasoning approach was followed in a positivism paradigm. The study used convenience sampling and collected responses from 280 Generation Y participants in Bangladesh. Partial least square-based structural equation modeling was employed. The results revealed that relative advantage ( $\beta = 0.229$ ,  $p < 0.05$ ), compatibility ( $\beta = 0.232$ ,  $p < 0.05$ ), complexity ( $\beta = 0.411$ ,  $p < 0.05$ ), and observability ( $\beta = 0.235$ ,  $p < 0.05$ ) of mHealth apps influence the trialability of mHealth apps and services among users. Trialability compatibility ( $\beta = 0.425$ ,  $p < 0.05$ ) of mHealth was positively related to the behavioral intention to use these mobile apps. The study found no moderating effects of attitude ( $\beta = 0.043$ ,  $p > 0.05$ ) or self-discipline motivation ( $\beta = 0.007$ ,  $p > 0.05$ ) on the hypothesized relationships. The empirical findings of this study may facilitate the development, design process, and implementation of mHealth applications with improved features that can lead to high user acceptance among Generation Y during future health crises.

**Keywords:** mHealth, DOI model, Generation Y, COVID-19

Journal Category and Indexed: SJR: Q2 and Indexed in Scopus, PubMed

Journal with Publisher Name: International Journal of Environmental Research and Public Health, Published by Multidisciplinary Digital Publishing Institute (MDPI).

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Jilani MMAK, Moniruzzaman M, Dey M, Alam E, Uddin MA. (2022). Strengthening the Trialability for the Intention to Use of mHealth Apps amidst Pandemic: A Cross-Sectional Study. International Journal of Environmental Research and Public Health, 19(5), 2752, <https://doi.org/10.3390/ijerph19052752>.

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# Extending the Theory of Planned Behavior to Envisage Social Distancing Behavior in Containing the COVID-19 Outbreak

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## ABSTRACT

The study investigates the antecedents that influence social distancing behavior during the COVID-19 outbreak and develops a hypothetical model integrating additional pertinent variables into the classic theory of planned behavior (TPB) to grasp the social distancing behavior accurately. The extended model was investigated employing structural equation modeling using the data collected through Snowball sampling from 331 respondents. The results unearth significant influences of all the predictor variables on their outcome variables. Surprisingly, the supportive government strategy has no crucial impact on perceived behavioral control toward social distancing. Furthermore, the study reports no trivial difference between young and old and high-low income groups on the intention-actual social distancing. The study outlines policy interventions to prevent mass transmission of the COVID-19 catastrophe. Lastly, limitations are specified to open up novel insights for future researchers.

**Keywords:** COVID-19, Social distancing behavior, The extended theory of planned behavior

Journal Category and Indexed: SJR: Q1 and Indexed in Scopus, Science Citation Index Expanded (SCIE).

Journal with Publisher Name: Heliyon, A Cell Press Journal, Published by ScienceDirect, ELSEVIER

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Paper Link: <https://www.sciencedirect.com/science/article/pii/S2405844024021443>

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## **BOOK CHAPTER**



## **How Do Social Media Literacy, Psychological Capital and Work Engagement Influence the Employee Morale of The Hospitality and Tourism Industry?**

Fatema Johara <sup>1</sup>, Munshi Muhammad Abdul Kader Jilani <sup>2</sup>, Md. Aftab Uddin <sup>3</sup>

### **ABSTRACT**

This study aims to assess the employee morale (EM) in the hospitality and tourism industry through social media literacy (SML), psychological capital (PsC), and work engagement (WE). The study followed the deductive reasoning approach to examine the hypothesized associations. The structural equation modeling via SmartPLS3 was used to analyse the cross-sectional data which were collected through the convenience sampling method. Results showed that SML and PsC positively influenced WE, and WE predicted EM. WE partially mediates the influence of SML and PsC on EM. The moderating effect of age showed that young adults' social media literacy on WE significantly differs from old adults. However, no significant age difference between young and old is observed between PsC and WE. The study intends to develop a better comprehension of practitioners' insights of SML, PsC that may influence employees' WE and morale who have been working in hospitality and tourism industries. The strengths and limitations of the study are also documented for policymakers, academics, and future researchers.

Book Title with Publisher Name: Technology Application in Tourism Fairs, Festivals and Events in Asia, Published by Springer

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Paper Link: [https://link.springer.com/chapter/10.1007/978-981-16-8070-0\\_5](https://link.springer.com/chapter/10.1007/978-981-16-8070-0_5)

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## **Does Tourism and Hospitality Workplace Fun Influence Employee Deep Acting in a Moderated Situation?**

Md Aftab Uddin <sup>1</sup>, Munshi Muhammad Abdul Kader Jilani <sup>2</sup>, Fatema Johara <sup>3</sup>

### **ABSTRACT**

Amidst the COVID-19 pandemic, event industry is among the most pandemic stricken industries needing urgent attention from policymaker and related professionals. The entire event organizers were seriously shaken due to the stoppage of programs, ceremonies, and other events that resulted in a higher turnover of employees in the event's management organization. In this pursuit, the present study examines the influence of workplace fun on employees' deep acting with the help of psychological capital as both direct effect and moderating effect. The present pursuit is a quantitative in nature and followed deductive reasoning approach to examine the hypothesized relationships. Using the snowball sampling, the study collected data from employees who have been working in tourism and hospitality industry with an access to internet and social media. Respondents were requested to fill up the questionnaire delivered through poll survey. The study employed structural equation modeling via SmartPLS3 to analyze the data (n = 151). Results showed that the direct effects are supported. However, the moderating effect of psychological capital is not supported. The study also unmasks policy interventions and need-based guidelines to enhance employee engagement and deep-acting at the workplace. Additionally, the current project notes on how the limitations of the current study might be rooted out by the future researchers.

Book Title with Publisher Name: Tourism and Hospitality in Asia: Crisis, Resilience and Recovery, Published by Springer

To be cited:

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## Geopolitics of Financial Stress

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### ABSTRACT

This chapter explores the correlation between financial stress and geopolitical events, focusing on the underlying theoretical concepts, policy responses, case studies, and implications. The fundamental risk drivers in financial markets are the market parameters that establish the prices of various financial instruments, which include interest rates, exchange rates, commodity prices, and stock prices. By their very nature, these parameters fluctuate, and these fluctuations can result in changes in pricing and are therefore classified as risk factors. In addition to the risks inherent in financial instruments, non-financial events, widely called geopolitical risks, such as nuclear threats, war, terror events, and peace-related concerns, significantly influence investments, capital flows, banking operations, and stock market transactions at national and international levels. As a result, financial markets are prone to volatility and vulnerability, which can lead to stress in financial operations.

**Keywords:** Financial stress, Geopolitical risks, Case studies

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## Authors Biography of BIGM

**Dr. Mohammad Tareque**, a career civil servant, currently serves as the Director at the Bangladesh Institute of Governance and Management (BIGM). Before joining BIGM, Dr. Tareque worked as an Alternate Executive Director at the World Bank and as the Finance Secretary (Finance Division) at the Ministry of Finance, Bangladesh. He served in the Finance Division in various capacities, from deputy secretary to additional secretary. He also worked for about four years with the Asian Development Bank (ADB) as a Micro-economic Analysis Specialist and five years as the Director of the Prime Minister's Office, Government of Bangladesh (GoB). Dr. Tareque spent about 36 years in civil service. Thus, he has extensive experience in public administration, public finance management, development planning, macro-economic management and training. During his long tenure of about 15 years in the Finance Division, he developed a team of spirited officers, bonded by an esprit-de-corps, brought in a culture of intellectual discourse, led the team to usher in a wide range of reforms within the public financial management system of Bangladesh. He helped introduce the Medium-term Budgetary framework across the government based on the Medium-term Macro-framework, created Macro, Debt Management, and Autonomous wings of the finance division without creating any single additional post. Dr. Tareque also helped separation of monetary policy from fiscal operations, facilitated introductions of Public-Private Partnerships (PPP) and PPP financing instruments, created the Bangladesh Infrastructure Finance Fund Limited (BIFFL) as a PPP project financing vehicle and established the Public Financial Management (PFM) capacity enhancing institute namely, the Institute of Public Finance (IPF). During his career in the finance division, Dr. Tareque developed more than 22 policy papers to ensure socioeconomic developmental stability and strengthen financial accountability. Dr. Tareque completed BA (Honours) and MA degrees in Economics from the University of Dhaka. He also completed his PhD in Economics and MA in Political Economy from the University of Boston, USA. He participated in many professional training programs at national and international reputed institutions. Dr. Tareque has written around 19 articles/conference papers in reputed international and national journals indexed in/published by SSCI and ESCI - Thomson Reuters (Web of Science), Scopus, SAGE, Springer, Wiley, and Emerald.

**Dr. Sheikh Ashiqurrahman Prince** is a Professor at the Bangladesh Institute of Governance and Management (BIGM) with 17 years of teaching experience and expertise in quantitative research and data analysis such as AMOS, Smart PLS, and Process Macro. He holds a Ph.D. in Consumer Psychology from the Asian Institute of Technology, Thailand, and has published extensively in top-tier international and national journals. As the Executive Editor of the BIGM Journal of Policy Analysis, Dr. Prince is also actively involved in academic administration and international conferences, contributing significantly to the fields of Consumer Behavior, Human Resources Management and Microfinance Business.

**Ms. Tahmina Sultana** is academically trained in Sociology and Population Sciences from Shahjalal University of Science and Technology and the University of Dhaka. She is working at the Bangladesh Institute of Governance and Management (BIGM) as a Research Fellow to lead and coordinate all research activities and disseminate the research findings outside BIGM. During her 15 years long career, she has been engaged in various health related projects focusing on maternal and neo-natal health, child and adolescent health, HIV/ AIDS and health systems of Bangladesh in various international organizations such as icddr,b, Population Council, Bangladesh and Action Aid. She has published several scientific papers, policy briefs, training manuals, Op-Ed in different peer reviewed international journals, national dailies based on research findings. Her research interests are health systems and policy research with the focus on governance issues. Currently, she is pursuing her PhD in Applied Demography and Social Research at the Institute for Population and Social Research at Mahidol University, Thailand.

**Dr. Munshi Muhammad Abdul Kader Jilani** is an Assistant Professor of Human Resource Management at the Bangladesh Institute of Governance and Management (BIGM), University of Dhaka (Affiliated), Bangladesh. He obtained PhD in Knowledge Management from the School of Management, Wuhan University of Technology, under a CSC scholarship. A recipient of the prestigious ICCR scholarship, he holds an MBA in Human Resource Management from the Indian Institute of Social Welfare and Business Management (IISWBM) at the University of Calcutta, India. Before that, he graduated with his BBA (Honors) and MBA in International Management from the Department of Management at the University of Chittagong, Bangladesh. With over sixteen years of experience in academia, Dr. Jilani has an extensive teaching portfolio that includes prior roles in the Department of Management and Human Resource Management at City University, the University of Information Technology and Science (UITS), and Army Institute of Business Administration (AIBA) in Bangladesh. Before his academic career, he was part of the HR team at Youngone Corporation Chittagong, one of Bangladesh's most prominent manufacturing sectors. Dr. Jilani is an active academic who has published a great deal of work in international peer-reviewed journals. His works are featured in esteemed journals such as Management Research Review, Journal of Human Behavior in the Social Environment, Sustainability Journal, Asia Pacific Journal of Tourism Research, International Journal of Environmental Research and Public Health, Heliyon Journal, PLoS ONE, Social Sciences & Humanities Open, and Journal on Innovation and Sustainability RISUS. His research interests are diverse and encompass human resource management and development, public policy, organizational resilience, employee wellbeing, knowledge management, and employee engagement.

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