Print ISSN: 2288-4637 / Online ISSN 2288-4645
doi:10.13106/jafeb.2022.vol9.no10.0235

Impacts of Financial Inclusion on Sustainable Development in India

Saumya SINGH[1], Rahul Singh GAUTAM[2], Bhakti AGARWAL[3],

Aman PUSHP[4], Prashant BARGE[5], Shailesh RASTOGI[6]

Received: September 15, 2022 Revised: November 26, 2022 Accepted: December 05, 2022

Abstract

The ultimate motive of the paper is to establish whether financial inclusion (FI) has a consequential impact on the Sustainable Development (SD) of India. This study uses one model for the assessment of the influence of FI through the Co-Operative bank network on SD. This is purposely done to analyze the absolute impact of the role of the Co-Operative bank network in the said context. The sample encompasses data taken from 28 states and 3 Union Territories for two years (FY2018-FY2020). Assessment of data for the remaining Union Territories is not undertaken for the reason of the non-availability of data for other Union Territories. This study uses Panel Data Analysis (PDA) to establish the nexus of the relation between the said variables. Results of this study reveal elevated levels of SD resultant of increased FI thereby indicating a positive and significant relationship between the said variables. Unlike previous studies, this study gives India-specific significant findings, which suggests policy formulation for increasing the numbers and improving the governance of Co-Operative bank networks for SD. Co-Operative bank network as a proxy despite having high weighted significance in FI has not been incorporated in any recent study as per the last updated knowledge of authors.

Keywords: Financial Inclusion, Sustainable Development, Co-operative Bank Network, Sustainable Development Goals

JEL Classification Code: O1, O4, G2

1. Introduction

Financial inclusion (FI) is making available the poor access to all the basic financial services (FS) at a reasonable cost (Kandpal, 2020). FI being multi-faceted is the access provided to all persons to formal financial services. These financial services (FS) are fairly priced and cost-reasonable when compared to informal FS, which have a deterring impact on low-income slab groups (Inoue, 2019). Concerning the case study of Nigeria, FI has a constructive significance on SD (Ade' Soyemi et al., 2020). FI through the extension of credits impacts United Nations' Sustainable Development Goals (SDGs) achievement. There also exists empirical proof that gender and education levels impact FI as well, especially in developing economies. Whereby financially excluded classes pay higher interests on informal credits further affecting their financial conditions and achievement of SDGs (Kara et al., 2021).

According to Mitlin et al. (1992), SD is development since it guarantees worldwide access to resources for people's growth as well as survival. Sustainable Development (SD) is a development having the potential to meet the current needs

[1]First Author and Corresponding Author. Ph.D. Scholar, Symbiosis Institute of Business Management Pune, Symbiosis International (Deemed) University, India. ORCID ID: 0000-0003-1597-2980. [Postal Address: Symbiosis Knowledge Village, Gram Lavale, Tal Mulshi, Pune, Maharashtra 412115, India] Email: sumosinghvns@gmail.com
[2]PhD Scholar, Symbiosis Institute of Business Management Pune, Symbiosis International (Deemed) University, India. ORCID ID: 0000-0002-4035-9638. Email: bouddhrahul@gmail.com
[3]PhD Scholar, Symbiosis Institute of Business Management Pune, Symbiosis International (Deemed) University, India. ORCID ID: 0000-0003-1986-4538. Email: agarwal.bhakti96@gmail.com
[4]PhD Scholar, Symbiosis Institute of Business Management Pune, Symbiosis International (Deemed) University, India. ORCID ID: 0000-0002-3171-4474. Email: amanpushp4@gmail.com
[5]Assistant Professor, Symbiosis Institute of Business Management Pune, Symbiosis International (b Deemed) University, India. ORCID ID: 0000-0002-7717-0708. Email: prashantbarge@sibmpune.edu.in
[6]Professor, Symbiosis Institute of Business Management Pune, Symbiosis International (Deemed) University, India. ORCID ID: 0000-0001-6766-8708. Email: krishnasgdas@gmail.com

in a manner that does not negatively impact the capacity to meet future generations' needs. The elimination of poverty, basic infrastructure construction, and strengthening of local bodies in rural areas are the main aims of promoting rural development. They form the basic requisite elements for SD in rural areas (Savitha & Jyothi, 2013). Numerous challenges are faced in the realization of SD which incorporates inclusive growth, industrialization being both sustainable and inclusive, and infrastructure, among other factors Parida et al. (2022).

There are umpteen ways financial inclusion impacts the SD of India. Ozili (2022) maintains that FI has an impact on electricity production, literacy, and productivity of industries, among other factors. Despite the relevance of FI on SDGs achievement, restricted studies deal with the said problem so far. The existing literature fails to provide any comprehensive, conclusive, and established insights into the bearing of FI on the SD more so in the context of India. Results also remain inconclusive on account of contradictory findings of the literature. Existing literature either restricts to states rather than all India level or pertains to continent level studies. An India-specific study also needs to be undertaken which deals with the problem at the Pan-India level and does not restrict regionally.

The inconclusiveness of the results can be vouched from the existing literature. Lal (2018) maintains a high significance level of financial inclusion on poverty mitigation when assessed through cooperative banks. The study provides useful insights for the assessment of the impacts or influence of FI on SDG1. Further mention of inclusive growth as a constituent of inclusive development is made in the study. The limiting factor of this study is that it restricts to only three north Indian states. Li et al. (2021), contrary to the findings of the existing pieces of literature pointing to the positive impact and influence of FI on SDGs around the globe states the negative bearings of FI on SDGs realization. This is when the analysis is done in the context of poor masses with limited adaptive capabilities. Ma'ruf and Aryani (2019) further confirmed the same when assessment is done in light of the socio-economic factors of ASEAN nations.

Moreover, Park and Mercado (2018) found the absence of a link between FI and inequality of income when analyzing the Asian sample; however, this is not the case when the world sample is analyzed. A significant correlation is found between both variables. FI and income inequality come under SDG 10, which deals with social, political, and economic inclusion. Since the results are inconsistent when Asian and world samples are analyzed, a need for country-specific analyses gets highlighted. Abimbola et al. (2018), taking the case study of Nigeria, maintain that FI in poverty-driven economies is still indefinite. The study highlights that the economic activities of the poor masses fail to get captured in reports on the economy. The study further highlights that many of those belonging to the poor masses are already aware of the benefits that FI would bring to their economic conditions. With this literature coming into the picture, it becomes necessary to establish and confirm the relationship between FI and SD in the context of India. These studies highlight the impact of FI on SD in more ways than one. Looking at the previous literature, we can also vouch for the very limited usage of cooperative banks as a variable for the assessment of the said problem despite its crucial role in FI.

The discussions above make it clear that this study aims to resolve inconclusiveness in the existing literature. The objective of this study is to arrive at a conclusive result and establish the nexus of the relationship between FI and SD. The study aims to expand the existing knowledge base by taking into consideration the influence that FI exercises on different dimensions of the sustainable development goals at an all-India level routing through Co-operative Bank networks.

Co-operative bank networks help poverty-clutched masses in India fight financial exclusion and associated disabilities by extension of core financial services. This helps in the realization of multiple goals of SD as has been framed by the UN. Despite the requirement of relevant modifications in its dynamics, its role remains pronounced and under-explored in the existing literature. Therefore, the motivation of this study is to take up a conclusive analysis that explores the relation nexus between the said variables through Co-operatives.

A novel feature underlying this study is in the usage of panel data for assessment and taking into account the total distribution of the number of cooperative bank branches as a proxy indicator of FI for assessing the impact on SD at the Pan India levels. Nath and Arrawatia (2022) pointed out the importance of cooperatives' role in maintaining their criticality in achieving SDGs due to their social and economic expansion. According to Kumar and Bhatnagar (2022), cooperative banks play a crucial role in helping the rural population who has been left out of the financial system.

The second part of this study deals with Literature Review and Hypothesis Development, followed by Data and Research methodology in the third part and Results in the fourth part. The fifth part deals with the Discussion, followed by the sixth part, which deals with the Conclusion.

2. Literature Review and Hypothesis

Literature on the topic deals with the impact of FI on several sub-components of sustainable development ranging from poverty, economic growth, and infrastructure to food security, environmental impact, and gender equality. Literature doesn't restrict to India but also covers financial inclusion's impact on various facets of sustainable development in various parts of the world, including both developed and developing economies.

Niaz (2022) stated that in the long run, FI has a substantial and significant influence on the realization of SD. The study further gives insights into gender and demography-based findings whereby impoverished urban sections are mentioned to have benefited more than their rural counterparts. This demographic divide in the differing degree of realization of benefits as vouched in this literature is complimented by other studies pointing to the role of FI on poverty and food security.

Tay et al. (2022) highlighted the glaring divide on several fronts in the usage of financial inclusion through digital media in developing economies. These economies are using it to combat poverty, especially in Asia. Nepal and Neupane (2022) conducted a study in multiple districts of the state of Bihar, India, giving insights into the linkage of financial inclusion (FI) and SDG2. In this study, indications have been made regarding a significant and positive relationship between FI and food security.

Purwiyanta et al. (2022) confirmed a unidirectional relationship and connection between financial inclusion (FI) and economic growth, which again happens to be a constituent of sustainable development. They stated that financial inclusion has a positive influence on the growth of the economy, but the reverse is not true. On the other hand, Kim et al. (2018) used the panel causality test for OIC countries to investigate mutual causalities between the two variables. According to a study that looked at the case studies of several Indian states, sustainable development is significantly impacted and necessitates not only financial inclusion and strategic economic growth but also IT development (Pradhan et al., 2021). Poverty alleviation, reduction in inequality, and economic growth get significantly influenced by all the aspects of financial stability. The same does not hold when the assessment of multiple Asian nations is done considering the partial impact of FI (Ratnawati, 2020).

Hussain et al. (2021) in a study on multiple Asian nations, concluded that financial inclusion elevates carbon pollution levels. Financial inclusion increments the expansion of the production capacity of the enterprises and also increases the purchasing power capacity of those financially included. This study thereby stated the negative implication that financial inclusion (FI) has on sustainable development. Zaidi et al. (2021) also suggested in a study conducted that policy formulation programs must align both financial inclusion and consumption pattern that impacts the environment. On the other hand, Dai et al. (2022) conducted a study that took the RCEP economies into account during a sixteen-year timeframe. According to the report, financial inclusion benefits the environment by promoting renewable energy sources. The findings of this literature differ from those of others, which claim that financial inclusion has damaged the environment because of an increase in demand and customer base.

Neaime and Gaysset (2018) came up with new insights in a study conducted on MENA nations, whereby results confirmed that the influence of FI is substantial on the reduction of income inequality but does not have any influence of significance on poverty. This study thereby links financial inclusion with two different constituents of sustainable development.

Siddik (2017), explored the actual role of FI in the improvement of the overall economic condition of women and their quality of life. The study found the significance of financial inclusion in the elevation of levels of standard of living of women, including those belonging to the rural areas, and their reduced dependence on informal lending institutions. George and Thomachan (2018) also confirm the same in the findings of yet another study. Kandari et al. (2021) linked the nexus of technology usage and FI. Insights are drawn into gender-based vulnerability regarding access to technology and credit and the resultant disability on inclusion.

Raza et al. (2019), in a Pakistan-centered study, demonstrated the significant positive impact that financial inclusion (FI) has on the Human Development Index of Pakistan's economy and thereby, on the sustainable development of Pakistan. The study made a special point of emphasizing the Human Development Index above the Gross Domestic Product because it paints a more accurate picture of development. In a cross-nation inspection in a study conducted, mention has been made of the unfavorable bearings of financial exclusion on equality of income. The study elucidates the economic condition of women going for a toss, provided the absence of financial inclusion (Fouejieu et al., 2020).

Anh Tu et al. (2019) conducted a study that points out the usage of financial inclusion for helping mid-income economies improve their financial conditions. This literature has been reviewed considering the dependence of certain elements of sustainable development on finance levels, which again in this study is being influenced by the variable financial inclusion. Nguyen and Ha (2021) advocated a stronger emphasis on the quality of financial institutions in the context of ASIAN countries to protect those who are financially included from potential breaches and other dangers.

Taking the case study of Nigeria, the assertion of financial inclusion being a remedy for alleviation of poverty and doing away with gender inequality has been made in the study conducted. The study highlights that extension of credit to poverty stuck sections can help the nations to develop further (Osagie, 2020). Another study has been conducted dealing with the case study of the developed economy of the USA. The study asserts its findings to show financial inclusion, among other factors, has a significant impact on energy efficiency (Chen et al., 2022).

H1: *Financial inclusion significantly impacts India's Sustainable development (Figure 1).*

3. Data and Research Methodology

3.1. Data

This current study involves the data of the secondary nature of 28 different states as well as 3 union territories of India. The data has been collected for a total time period of 3 years, starting from 2018 to 2020. The primary reason behind including data from such a large number of states and UTs is to get a reliable and robust result from the analysis. The data related to the independent variable, the total distribution of no. of cooperative branches, has been retrieved from the official website of NITI Aayog. The other data related to the dependent variable, SDG_index as well as the control variable, the number of functioning offices, is obtained from the website of RBI. Table 1 discusses a brief description of each variable used in this study's analysis.

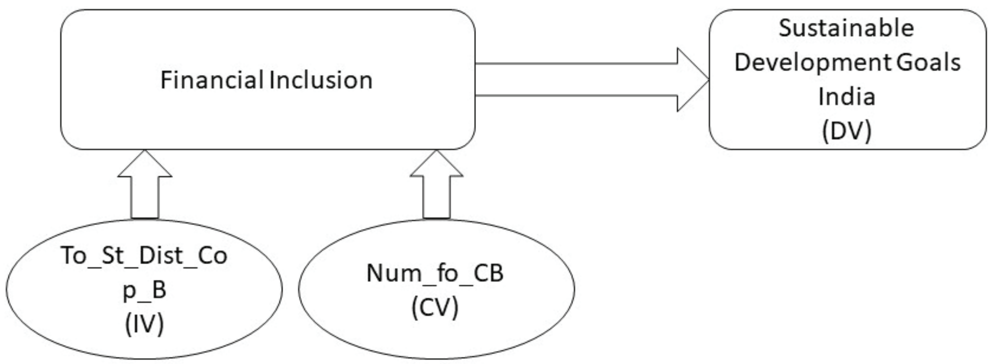

Figure 1: Conceptual Model

Table 1: List of Variables

S.No.	Variables	Type	Code	Definition	Citations
1	SDG India Index	DV	SDG_Ind	The SDG India Index conducts a detailed analysis of the nation's social, economic, and environmental problems as well as those of its States and Union Territories.	NITI Aayog (2022)
2	Total Distribution of the Number of Co-Operative Bank Branches	IV	lnTo_ St_Dist_ Cop_B	Total bank branch distribution is the expansion of the Co-Operative banks' network and this variable is a proxy of financial inclusion in this study.	Reserve Bank of India - Publications. (n.d.)
3	Number of Functioning Offices of Commercial Banks	CV	lnNum_fo_ CB	Several Functioning offices of commercial banks are used as a control variable in this study.	Reserve Bank of India - Publications. (n.d.)

Note: IV proxy of Financial Inclusion and DV is the proxy of India's Sustainable development.

3.2. Research Methodology

Data analysis has been conducted with the help of a panel data model (PDM). As Hsiao (2007) and Baltagi (2008), the PDM attributes both cross-sectional and time-series features. Therefore, PDM offers more information than cross-section analysis or using only one time series in the study.

The model specifications are given as:

$$\text{SDG\_Ind}_{it} = \beta_0 + \beta_1 \text{lnTo\_St\_Dist\_Cop\_B}_{it} + \text{lnNum\_fo\_CB}_{it} + u_{it} \quad (1)$$

Where SDG_Ind stands for sustainable development goals India index. It is the dependent variable in the current study. Furthermore, β_0 is the constant term and the lnTo_St_Dist_Cop_B which stands for Total Distribution of Number of Co-Operative bank Branches is the independent variable. Whereas lnNum_fo_CB (Number of Functioning Offices of Commercial Banks) is the control variable in the paper. Further, uit is considered an error term in the equation form.

Since there is only one dependent variable and one independent variable to be examined, only a single basic model has been created to analyze the problem.

4. Results

4.1. Descriptive Analysis and Correlation

The descriptive statistics and correlational values of variables used in the study are depicted in Table 2. The average value of SDG_Ind is 63.91 with a standard deviation of 6.249, showing that a large amount of expenditure is getting incurred by governmental bodies working in the sample states and UTs in the area of sustainable development of the economy. The mean value of lnTo_St_Dist_Cop_B is 500.84 with SD 717.54, which shows an enormous amount of expansion of cooperative banks is getting performed in all the selected states and UTs. Further, lnNum_fo_CB with mean and SD values of 4818.73 and 4618.88, respectively, depicts that the huge number of offices of commercial banks are being operated in the Indian economy.

In the correlation matrix, the independent variable is insignificantly correlated with the dependent one. However, it is significantly correlated with the control variable. However, the significant correlation has a value of more than 0.80. Hence, the problem of multicollinearity is not restricted to the study (Baltagi, 2008).

4.2. Regression Analysis

In Table 3, a relationship between the SDG_Ind index and lnTo_St_Dist_Cop_B has been observed. The output of the analysis is depicted in table 3. As per the analysis, R-square and standard error of regression values are calculated to be 0.2392 and 37567.432, respectively. For random effects, BP-a test has been performed, which resulted in being insignificant in nature. Further, the Hausman test also produced the same kind of insignificant result. Therefore, the model shows compatibility with RE. Hence, the coefficients of lnTo_St_Dist_Cop_B and lnNum_fo_CB, 3.901 and –3.290, respectively, with a significant *p*-value of the independent variable, depicts that the independent variable is significantly impacting the dependent one (SDG_Ind).

4.3. Endogeneity Check

The endogeneity check in the study has been performed by the Wu-Hausman test and the Durbin-Chi-square test (see Table 4). The results show that the tests analyzed the independent variable (lnTo_St_Dist_Cop_B) resulted in an insignificant *p*-value. Hence, the tests proved that the null of endogeneity is not rejected and the robustness of the results is guaranteed.

5. Discussion

The only hypothesis formulated for the paper has turned out to be significant. The implication of the result thereby

Table 2: Descriptive Statistics and Correlation

Correlation Matrix							
	SDG_Ind	**lnTo_St_Dist_Cop_B**	**lnNum_fo_CB**	**Mean**	**SD**	**Min**	**Max**
SDG_Ind	1			63.91	6.249	50	75
lnTo_St_Dist_Cop_B	0.1746 (0.0942)	1		500.84	717.54	10	3805
lnNum_fo_CB	0.0259 (0.8054)	0.9182* (0.0000)	1	4818.73	4618.88	70.5	18436.5

Note: Values in the correlation matrix are correlation coefficients. Values in parentheses are *p*-values. *Significant at 5%.

Table 3: Static Model

DV: SDG_Ind	Model 1		
	Coeff.	**S.E.**	***P*-value**
lnTo_St_Dist_Cop_B	3.901*	0.982	0.000
lnNum_fo_CB	–3.290*	0.929	0.000
Cons.	68.367*	3.158	0.000
BP-test (Random effect)	0.00 (1.0000)		
Hausman Test	0.01 (0.9945)		
Wald test for Heteroscedasticity[1]	0.69 (0.8761)		
F-test			
Chi-square	15.85 (0.0004)		
Wooldridge Autocorrelation Test[2] AR (1)	10.073 (0.0866)		

Note: Wald test of heteroscedasticity has the null of no heteroscedasticity. Wooldridge test of autocorrelation in the panel has the null of no autocorrelation (with 1 lag). Robust estimates are estimated due to significant Heteroscedasticity and Autocorrelation. DV is SDG_Ind (India Sustainable Development Goal). * sig at 5%.

Table 4: Endogeneity

DV: SDG_Ind	
	lnTo_St_Dist_Cop_B
Durbin Chi-2	0.149427 (0.6991)
Wu-Hausman Test	0.142565 (0.7067)

Note: *P*-value is the value in (), and * denotes a significant value at a 5% level of significance. The endogenous variable has the prefix SDG_Ind.

confirms that there is a significant impact that FI has on the sustainable development of India. The use of distribution of the number of Co-Operative banks network on Sustainable Development Index using the number of functioning offices of commercial banks as a controlled variable gives a more realistic picture. This is because Co-Operative banks represent efforts of cooperation by people to have access to credit that they otherwise lacked. Cooperative bank as an indicator of financial inclusion does not just restrict the development of communities. However, it extends to influence the sustainable development of India as inferred from the study's results.

Very limited studies deal with linking FI and SD, specifically in India. However, studies linking FI and SD are conducted considering other developing and developed countries. The results of this study contradict the results of similar studies conducted in other regions of the world but also find confirmation in much literature of the past. Hussain et al. (2021) stated in a study the negative impacts that FI has on the environmental aspect of SD. Dai et al. (2022) contrarily hold that the FI extends benefits on the environmental aspect of SD.

This paper lifts the existing literature on the impact of FI on SD in other developing nations by using Co-Operatives as a proxy variable in the study. The paper thereby extends the insights and adds value to the other aspects of the environment and other indicators used in them. Kumar et al. (2015) discussed the significance of Co-operatives in sustaining the subsistence of the agro-based rural populace of India. Mention is also made of the possibility of extension of benefits of improvement in Co-Operatives to the rural populace of other economies of the world. The study highlighted the significance of SD extended by FI through Co-operatives.

6. Conclusion

This study aims to establish the implications of the impact of FI on SD. The decision was consciously taken regarding the analysis of financial inclusion through Co-Operatives only. This decision was based on the fact of the dependence of a large populace of India, especially in rural areas, on agriculture. It is provided that rural agriculture-driven households have been availing credits through Co-Operative banks, which have played an instrumental role in the financial inclusion of these sections. The findings of the study disclose that FI positively impacts India's sustainable development. Efforts hence must be expended to promote financial inclusion by strengthening the governance dynamics of the Co-Operatives in India.

The usage of a single model has been made for the expansion of specific clarity on the topic previously not studied. Yet another aim of the paper was to conclude at the Pan India level without restricting to single or multiple states.

The study conducted is not free of shortcomings, and there is a scope for improvement by going for a more holistic study restricting to not just Co-operatives but also other indicators of financial inclusion and assessing their cumulative and respective individual share in impact on sustainable development. The study is conducted for two years (FY2018-FY2020) for 28 states and 3 union territories. Similar analyses could also be made in other developing countries for cross-country analyses.

References

Abimbola, A., Olokoyo, F. O., Babalola, O., & Farouk, E. (2018). Financial inclusion as a catalyst for poverty reduction in Nigeria. *International Journal of Scientific Research and Management, 6*, 724. https://doi.org/10.18535/ijsrm/v6i6.em06

Ade' Soyemi, K., Olowofela, O. E., & Yunusa, L. A. (2020). Financial inclusion and sustainable development in Nigeria. *Journal of Economics and Management, 39*(1), 105–131. https://doi.org/10.22367/jem.2020.39.06

Anh Tu, C., Thi Minh Phi, N., Quoc Tuan, L., Yoshino, N., Sarker, T., & Taghizadeh-Hesary, F. (2019). *Remittance inflows, financial inclusion, and economic development: An empirical analysis of the world*. https://www.adb.org/publications/remittance-inflows-financial-inclusion-economic-

Baltagi, B. H. 2008. *Econometric analysis of panel data*. Chichester: John Wiley & Sons.

Chen, H., Shi, Y., Xu, M., & Zhao, X. (2022). Investment in renewable energy resources, sustainable financial inclusion, and energy efficiency: A case of US economy. *Resources Policy, 77*, 680. https://doi.org/10.1016/j.resourpol.2022.102680

Dai, X., Qian, S., & Zhang, J. (2022). Sustainable financial inclusion as a source of the green environment? Evidence from selected regional comprehensive economic partnership countries. *Ekonomska Istrazivanja, 35*(1), 1–21. https://doi.org/10.1080/1331677X.2022.2035244

Fouejieu, A., Sahay, R., Cihak, M., & Chen, S. (2020). Financial inclusion and inequality: A cross-country analysis. *Journal of International Trade and Economic Development, 9,* 1–31. https://doi.org/10.1080/09638199.2020.1785532

George, B., & Thomachan, K. T. (2018). Financial inclusion and women empowerment: A gender perspective. *International Journal of Research: Granthaalayah, 6*(5), 229–237. https://doi.org/10.5281/zenodo.1270189

Hsiao, C. (2007). *Panel data analysis: Advantages and challenges*. NJ: Sage.

Hussain, S., Jawad, S., & Shahzad, H. (2021). Financial inclusion and CO2 emissions in Asia: Implications for environmental sustainability. *Research Square, 5,* 1–17 https://doi.org/10.21203/rs.3.rs-245990/v1

Inoue, T. (2019). Financial inclusion and poverty reduction in India. *Journal of Financial Economic Policy, 11*(1), 21–33. https://doi.org/10.1108/JFEP-01-2018-0012

Kandari, P., Bahuguna, U., & Salgotra, A. K. (2021). Socio-economic and demographic determinants of financial inclusion in underdeveloped regions: A case study in India. *The Journal of Asian Finance, Economics, and Business, 8*(3), 1045–1052. https://doi.org/10.13106/JAFEB.2021.VOL8.NO3.1045

Kandpal, V. (2020). Reaching sustainable development goals: Bringing financial inclusion to reality in India. *Journal of Public Affairs, 20*(4), 1–10. https://doi.org/10.1002/pa.2277

Kara, A., Zhou, H., & Zhou, Y. (2021). Achieving the United Nations' sustainable development goals through financial inclusion: A systematic literature review of access to finance across the globe. *International Review of Financial Analysis, 77*, 101833.

Nepal, A., & Neupane, N. (2022). Living in the flood plain: Can financial inclusion, productive assets, and coping mechanism help reduce food insecurity? *Environmental Challenges, 6*, 1–12. https://doi.org/10.1016/j.envc.2021.100437

Kim, D. W., Yu, J. S., & Hassan, M. K. (2018). Financial inclusion and economic growth in OIC countries. *Research in International Business and Finance, 43*, 1–14. https://doi.org/10.1016/j.ribaf.2017.07.178

Kumar, N., & Bhatnagar, S. (2021). *Demystifying the role of cooperatives banks in financial inclusion: Study on emerging microfinance business model from India.* https://www.nibmindia.org/static/working_paper/NIBM_WP17_NKKSB.pdf

Kumar, V., Wankhede, K. G., & Gena, H. C. (2015). The livelihood of farmers on a sustainable basis. *American Journal of Educational Research, 3*(10), 1258–1266. https://doi.org/10.12691/education-3-10-8

Lal, T. (2018). Impact of financial inclusion on poverty alleviation through cooperative banks. *International Journal of Social Economics, 45*(5), 807–827. https://doi.org/10.1108/IJSE-05-2017-0194

Li, A., Gao, L., Chen, S., Zhao, J., Ujiyad, S., Huang, J., Han, X., & Bryan, B. A. (2021). Financial inclusion may limit sustainable development under economic globalization and climate change. *Environmental Research Letters, 16*(5), 1-13. https://doi.org/10.1088/1748-9326/abf465

Ma'ruf, A., & Aryani, F. (2019). Financial inclusion and achievements of sustainable development goals (SDGs) in ASEAN. *GATR Journal of Business and Economics Review, 4*(4), 147–155. https://doi.org/10.35609/jber.2019.4.4(1)

Mitlin, D. (1992). Sustainable development: A guide to the literature. *Environment and Urbanization, 4*(1), 111–124. https://doi.org/10.1177/095624789200400112

Nath, S., & Arrawatia, R. (2022). Trade-offs or synergies? Hybridity and sustainable performance of dairy cooperatives in India. *World Development, 154*(2022), 1–14.

Neaime, S., & Gaysset, I. (2018). Financial inclusion and stability in MENA: Evidence from poverty and inequality. *Finance*

Research Letters, 24(2)*,* 230–237. https://doi.org/10.1016/j.frl.2017.09.007

Nguyen, Y. H. D., & Ha, D. T. T. (2021). The effect of institutional quality on financial inclusion in ASEAN Countries. *The Journal of Asian Finance, Economics, and Business, 8*(8), 421–431. https://doi.org/10.13106/JAFEB.2021.VOL8.NO8.0421

Niaz, M. U. (2022). Socio-economic development and sustainable development goals: A roadmap from vulnerability to sustainability through financial inclusion. *Ekonomska Istrazivanja, 35*(1), 3243–3275.

NITI Aayog. (2022). *SDG India Index* https://www.niti.gov.in/sdg-india-index

Osagie, R. O. (2020). Financial inclusion: A panacea for attaining sustainable development in developing countries like Nigeria. *Ekonomicko-Manazerske Spektrum, 14*(2), 1–11. https://doi.org/10.26552/ems.2020.2.1-11

Ozili, P. K. (2022). Financial inclusion and sustainable development: an empirical association. *Journal of Money and Business, 11,* 29. https://doi.org/10.1108/JMB-03-2022-0019

Parida, R., Katiyar, R., & Rajhans, K. (2022). Identification and analysis of critical barriers to achieving sustainable development in India. *Journal of Modelling in Management, 16,* 415 https://doi.org/10.1108/JM2-11-2020-0288

Park, C. Y., & Mercado, R. (2018). Financial inclusion, poverty, and income inequality. *Singapore Economic Review, 63*(1), 185–206. https://doi.org/10.1142/S0217590818410059

Pradhan, R. P., Arvin, M. B., Nair, M. S., Hall, J. H., & Bennett, S. E. (2021). Sustainable economic development in India: The dynamics between financial inclusion, ICT development, and economic growth. *Technological Forecasting and Social Change, 169*(21), 1–19. https://doi.org/10.1016/j.techfore.2021.120758

Purwiyanta, P., Pujiharjanto, A., Astuti, R. D., & Kijkasiwat, P. (2022). The causality of financial inclusion and economic growth in Indonesia. *Jurnal Analisis Bisnis Ekonomi, 20*(1), 18–30. https://doi.org/10.31603/bisnisekonomi.v20i1.6453

Ratnawati, K. (2020). The impact of financial inclusion on economic growth, poverty, income inequality, and financial stability in Asia. *The Journal of Asian Finance, Economics, and Business, 7*(10), 73–85. https://doi.org/10.13106/JAFEB.2020.VOL7.NO10.073

Raza, M. S., Tang, J., Rubab, S., & Wen, X. (2019). Determining the nexus between financial inclusion and economic development in Pakistan. *Journal of Money Laundering Control, 22*(2), 195–209. https://doi.org/10.1108/JMLC-12-2017-0068

Reserve Bank of India - Publications. (n.d.). *Reserve Bank of India - Publications*. https://m.rbi.org.in/scripts/PublicationsView.aspx?id=20794

Reserve Bank of India - Publications. (n.d.). *Reserve Bank of India - Publications.* https://m.rbi.org.in/scripts/PublicationsView.aspx?id=20945

Savitha, B., & Jyothi, P. (2013). Delivery of microcredit to self-help groups by regional rural banks in Andhra Pradesh. *Research Journal of Social Science & Management, 3*(6), 128–134.

Siddik, M. N. A. (2017). Does financial inclusion promote women's empowerment? Evidence from Bangladesh. *Applied Economics and Finance, 4*(4), 1-9. https://doi.org/10.11114/aef.v4i4.2514

Tay, L. Y., Tai, H. T., & Tan, G. S. (2022). Digital financial inclusion: A gateway to sustainable development. *Heliyon, 8*, 1–10. https://doi.org/10.1016/j.heliyon.2022.e09766

Zaidi, S. A. H., Hussain, M., & Uz Zaman, Q. (2021). Dynamic linkages between financial inclusion and carbon emissions: Evidence from selected OECD countries. Resources, Environment and *Sustainability, 4*(1), 1–7. https://doi.org/10.1016/j.resenv.2021.100022