



GREEN DIGITAL FINANCE AS A CATALYST FOR ACHIEVING SDGS IN INDIA

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Abstract:

The research paper is a study focusing on the role of green digital finance in the context of promoting SDGs (Sustainable Development Goals) in India. As the innovation and development in today's world are not only limited to faster growth while ignoring the goals aligned with the sustainability aspect, the objective of the study is to highlight the significance of SDGs in the field of commerce and finance. While understanding the level of depth already covered for this topic, it was found that a limited work has been done on SDG 13. Hence, the more emphasis has been laid on it in this paper. The paper is based on the secondary data sources which are collected and presented in the form of trend analysis and descriptive statistics. By applying the mentioned research methodology, it was observed that there is a positive trend in the growth of green and digital finance, helping achieve the prominent SDGs, like SDG 1, 8 and 13.

Keywords: *Digital finance, green finance, green digital finance, sustainable finance, SDG (Sustainable Development Goals)*

Introduction:

With the advancement in the sector of science and technology, it uplifts the development in the fields of other connected disciplines also. Due to this very reason, the field of finance is able to achieve the new heights which is commonly known as 'Fintech'. It is a combination of two words, namely Finance + Technology. But as the innovations and development accelerate, the concerns about the sustainability aspects also match the level. This opened the gateway to new problems as well as new solid solutions and measures to cure and control the same. Henceforth, the concept of SDGs (Sustainable Development Goals) was first heard in the United Nations in the year 2015.

In this paper, the context of SDGs is undertaken from the perspective of green digital finance. But before this could be comprehended, it is necessary to first go through the fundamentals. The core concepts of the study are explained as follows:



Digital finance:

As defined by the European Commission (Commission, n.d.), “Digital finance is the term used to describe the impact of new technologies on the financial services industry. It includes a variety of products, applications, processes and business models that have transformed the traditional way of providing banking and financial services.”

As defined by (Organisation for Economic Co-operation and Development) (OECD, n.d.), “Digital finance is streamlining financial processes, expanding access to financial services worldwide and revolutionising how people manage money, make payments and access loans. It is therefore crucial for financial efficiency, inclusion and innovation.”

SDG (Sustainable Development Goals):

As defined by the United Nations (Nations, n.d.), “The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity.”

Green finance:

The G20 report defines green finance as investments that, when considered in the larger framework of environmentally sustainable development, generate positive environmental effects, thus emphasising the need to ensure that investments are sustainable for ensuring development (Mavlutova, et al., 2025).

Green Digital Finance:

The concept of green digital finance refers to the potential for open innovation through the use of technology in financial services to support a green economy and sustainable development, including digital tools, platforms, etc., to stimulate green investment (Mavlutova, et al., 2025).

Overall, green digital finance mainly refers to the use of open digital technologies to promote investments in environmentally sustainable projects, which includes crowdfunding platforms for green projects; blockchain-based systems for tracking and verifying sustainable investments and their compliance with green standards; and the use of artificial intelligence in investment decisions to manage financial and environmental risks (Mavlutova, et al., 2025).

Review of Literature:

(Syed & Zaman, 2024)The paper is a study focusing on the role of digital finance in promoting selected SDGs (Sustainable Development Goals) set by the UN (United Nations). Here, the goals such as SDG (1) no poverty, SDG (8) economic growth and SDG (10) reducing inequality have been taken into consideration. The



researchers have used the least squares estimation technique for finding regression from the time duration of 2002 to 2020. Models such as neoclassical growth models and new growth theory are used through Cobb–Douglas production functions. Hypotheses such as the lack of impact of digitalisation on poverty eradication, economic growth and inequality are studied and proven. From this it was concluded digitalisation plays a significant role in promoting these mentioned SDG goals. The paper concludes by suggesting the further scope of this paper, which can be covered by studying other SDG goals like climate change.

(Chouchene, Ben-Ammar, & Ben Jabeur, 2026) The research paper lays emphasis on the major three dimensions of SDGs, namely economic, social and environmental, which have been affected due to the advancement of the Fintech sector. To examine this further by numerical data, a quantitative approach has been adopted. Data of 124 countries spanning over a time period of 2013 to 2020 is considered for finding the required coefficients of regression models such as fully modified and dynamic ordinary least squares estimators (FMOLS and DOLS). It also includes a cross-country empirical study to compare the growth and development amongst developed and developing nations. From this, it was found that there is a significant relationship between the level of the fintech ecosystem and the fulfilment of the SDGs. Henceforth, the authors suggest that the government should pay attention to enhancing the fintech infrastructure and strengthen the policies regarding the same.

(Mamun & László, 2025) The article is an analysis on the sustainable advancement through financial inclusion and sustainable finance. To understand these parameters, the authors have taken the help of Systematic Literature Review (SLR) and the PRISMA framework for the research methodology. Further, analysis such as bibliographic network analysis and visualisation (BNAV) using techniques such as citation network analysis (CNA), global citation score (GCS), and the CONK have been used. It takes 54 Scopus-published, peer-reviewed articles for the study. Going through these, it can be said that financial inclusion plays a vital role for sustainable finance and supporting SDGs.

(Ray & Mukherjee, 2025) The paper has discussed the impact of digital platforms for monetary transactions, which is measured by E-Taal (Electronic Transaction Aggregation and Analysis Layer) in relation to SDGs. To understand this in more detail and in quantitative terms, the use of Moran's statistics, least square model (OLS), spatial regression model and many others for regression analysis has been performed. Based on this, the result showed that these practices align positively with the set SDGs. It is also suggested that the government should work on inclusive growth of these technologies to cover the rural masses as well as to promote savings and investment options. The development of Digital Public Infrastructure (DPI) is to be considered, too.

(Mavlutova, et al., 2025) Addresses the achievement of SDGs through digitalisation in the sector of finance with the help of financial tools and innovations in green digital finance. It encompasses the region of European countries for the study. The usage of quantitative empirical analysis for green finance, digital innovation and



renewable energy deployment can be noticed in this. Some of the most important findings, such as the positive impact of green digital finance on clean energy, reduction in carbon intensity and attainment of SDGs, are derived from it. Therefore, at the end it was determined that these SDGs' implementation is not just a theoretical and feel-good approach but a practical and long-term planned strategy to optimise the limited available resources at their best.

Objectives:

- To identify the key indicators of green digital finance and SDGs
- To understand the growth of various indicators related to green digital finance and SDGs.
- To know the rate of growth of green digital finance and SDGs' indicators.

Research Methodology:

This study is conducted by utilising the information and data available on trusted websites owned by statutory bodies and the government of India. Hence, the work is based on a secondary data approach. Data collected from authentic national and international databases include NPCI, RBI, NITI Aayog, World Bank, and Climate Bonds Initiative. The application of methods like trend analysis and descriptive statistics has been taken into account. Techniques like Trend Analysis and Descriptive Statistics are applied over here.

Variables:

The variables were selected based on their conceptual relevance to digital finance, green finance, financial inclusion, and sustainable development, along with the availability of reliable secondary data from authentic national and international sources. The list of variables is mentioned below in a tabular form:

Table 1

Variable	Role
UPI Transaction Volume	Independent Variable
FI Index	Mediating Variable
SDG India Index	Dependent Variable
Renewable Energy Consumption	Sustainability Indicator
Green Bond Issuance	Green Finance Indicator

Discussion / Findings:

The section of data analysis is divided into two major parts, namely descriptive statistics and trend analysis. The values of the variables obtained for the same are given below:



Table 2

Year	UPI Volume (in Billions)	Financial Inclusion Index (FI Index Score out of 100)	SDG India Index (out of 100)	Renewable Energy Consumption (in % of Total Final Energy Consumption)	Green Bonds Issuance (Cumulative / Annual Green Debt Market Volume in \$ USD Billions)
2016	0.02	NA	NA	34.4	2.7
2017	91.5	NA	NA	34.5	3.2
2018	535.8	PROXY REQUIRED	57	36	7.1
2019	1252	PROXY REQUIRED	60	36.7	10.3
2020	2233	PROXY REQUIRED	66	38.5	6.1
2021	4597	53.9	66	39.7	6.6
2022	8375	56.4	NA	40.9	8.3
2023	13116	60.1	71	42.1	7.9
2024	16580	64.2	71	43.5*	9.4
2025	24162	67*	NA	44.8*	11.2*
2026	24162**	69*	NA	45.5*	12*

Note:

NA = Official data not available.

Proxy Required = RBI FI-Index was not officially released before FY2020-21.

(*) = Estimated/Projected values

(**) = FY2025-26 provisional continuation value used for trend consistency.

Descriptive statistics:

The below table shows a comprehensive view of a few prominent means of descriptive statistics in the form of Mean, Standard Deviation, Minimum and Maximum value depending upon the availability of the data from the above table.

Table 3

Variable	Mean	Standard Deviation	Minimum	Maximum
UPI Transactions	8645.85	9436.08	0.02	24162
FI Index	61.77	5.98	53.9	69
SDG Index	65.17	5.71	57	71
Renewable Energy	39.69	4.01	34.4	45.5
Green Bonds	7.71	3.00	2.7	12



UPI Transactions:

The mean value of UPI transactions indicates substantial growth in digital payment adoption during the study period. The exponentially high standard deviation reflects rapid expansion and increasing acceptance of digital finance in India.

FI Index:

The standard deviation and the mean value show a stable growth in the financial inclusion index. This conveys that the policies and initiatives taken by the government is slowly reaching the targeted population.

SDG Index:

Just as the Financial Inclusion Index has seen a consistent increase rate in its value, a similar trend can also be seen in the SDG Index, too. This shows positive growth in attaining the sustainability goals.

Renewable Energy Consumption:

Slow and steady progress can be observed in the consumption of renewable energy. This demonstrates the changing trends in the economy and increasing awareness of the public for long-term sustainability.

Green Bonds:

Just as the responsiveness level of people has led to a gradual and sturdy growth in the consumption of renewable energy, in the same way, promising progress can be seen in the green finance investment pattern too.

Trend Analysis:

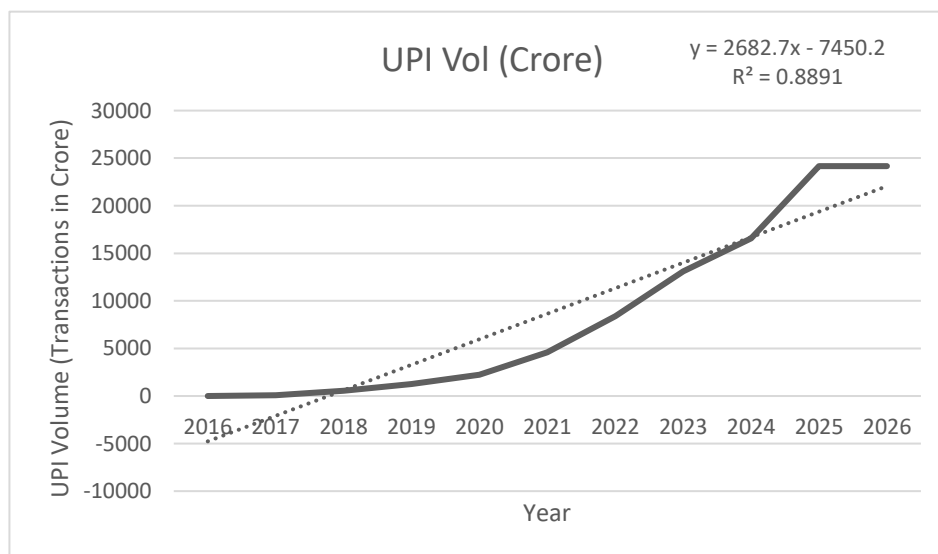


Figure 1

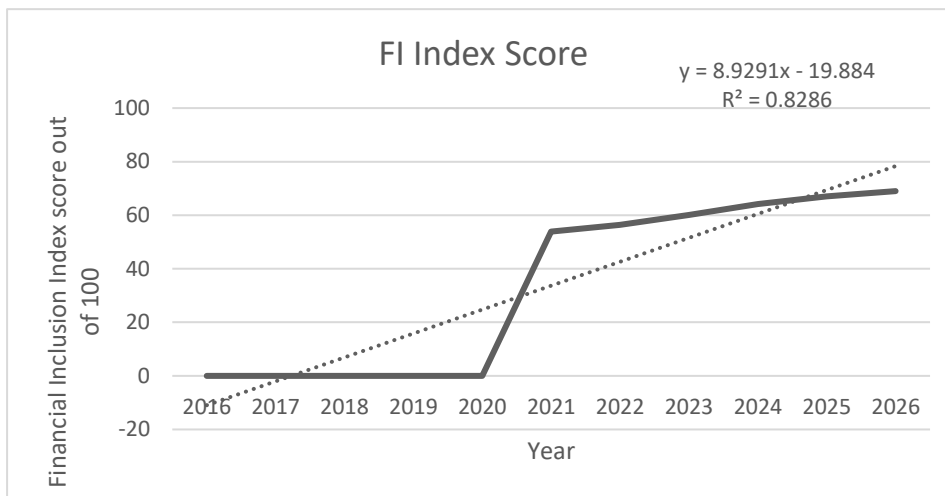


Figure 2

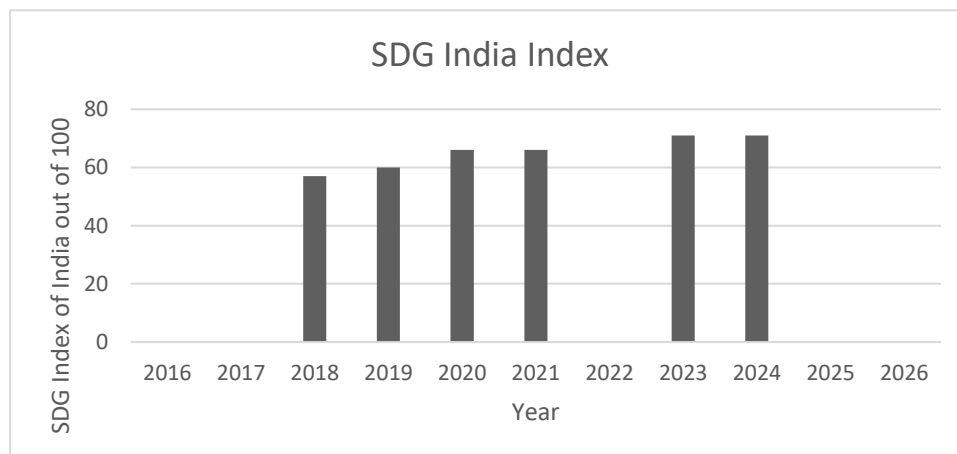


Figure 3

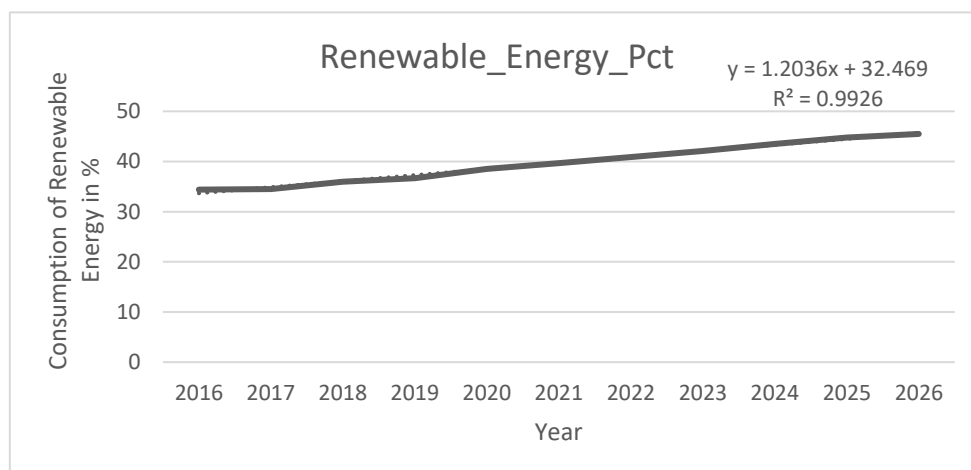
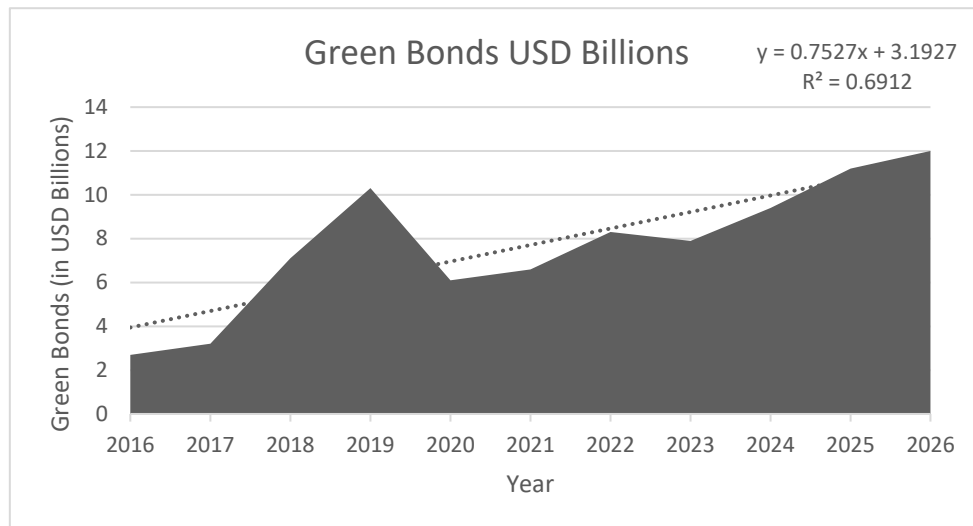


Figure 4



Figure

As it can be observed from the above figures and trends that all the variables are having an upward-going movement, it can be deduced that all these constituents are correlated with one another, with the UPI transaction parameter showing a drastic and significant increase in its volume. This undoubtedly shares the impact of digital finance in the fulfilment of the SDGs, SDG 13 especially, which talks about climate actions.

Limitation of the study:

As the study consists of a limited number of data available, applying regression analysis might not provide the required accurate results, ensuing an incomplete picture of the effects of variables on each other.

Conclusion and Suggestions:

From the data presented in the form of graphs and descriptive statistics, there is a clear picture of how the induction of digitalization and transformation of traditional practices into modern ones have opened the new horizons of altogether a different field for growth and development. Although it is equally important to consider the shortcomings that come along with this economic progress. Hence, the paper investigated the role of digital finance and green digital finance in accomplishing the SDGs.

Realization of these goals will not only help the nation in building a stronger economy and better economic development and growth but will also continue to tackle environmental, social and economic issues. The paper suggests increasing the quantum of the digital transaction by enhancing and advancing the security aspect of such platforms to build and raise the level of trust amongst the people. Ultimately succeeding in financial inclusion along with SDGs through green digital finance.



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- <https://www.niti.gov.in/>
- <https://databank.worldbank.org/source/world-development-indicators>
- <https://data.worldbank.org/indicator/EG.FEC.RNEW.ZS>
- <https://www.sebi.gov.in/>
- <https://www.rbi.org.in/>
- Other relevant sources for data collection:
- <https://chatgpt.com/>
- <https://claude.ai/>
- <https://www.perplexity.ai/>
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