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GLOBAL FINTECH THROUGH SUSTAINABLE DEVELOPMENT METRICS: A DATA DRIVEN DECISION METRICS

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Abstract

This project explores the contribution of fintech to global sustainability, with a particular emphasis on the role of digital financial innovations in economic, social, and environmental outcomes. As the world begins to take the problem of financial inequality and environmental degradation more seriously, fintech has become a possible instrument that can be used to foster inclusive and sustainable development. This study aims to empirically investigate how the adoption of fintech, green financial awareness, digital financial inclusion, and sustainable fintech practices influence the global sustainability outcomes.It employed a primary quantitative method and data were gathered by way of an online survey of 210 participants of varying backgrounds. The correlation and multiple regression were used to determine the relationship between the variables using SPSS. The results indicated that the variables of fintech were all positively correlated with the outcomes of sustainability. Nevertheless, sustainable fintech practices and digital financial inclusion turned out to be the most prominent predictors, whereas fintech adoption and green financial awareness representing independent effects were less strong. The article emphasizes that fintech has the best contribution towards sustainability when it is inclusive and incorporates the use of environmentally friendly practices. The results indicate that sustainable fintech innovations and promoting digital access to financial services by policymakers and financial institutions must be prioritized in achieving balanced and inclusive global development.

Introduction

Financial inequality is becoming a global issue, and environmental sustainability is a growing concern that requires new financial policies. Financial technology (fintech) has been rapidly growing in the United States, China, India, Brazil, and European countries, which has changed the nature of financial systems and service access. Empirical research indicates that the use of fintech in 124 countries is a key factor in enhancing sustainable development, which promotes economic, social, and environmental development. On a comparable note, research in G20 economies attests that fintech, as well as AI and blockchain, is statistically significant positively influencing sustainability performance.

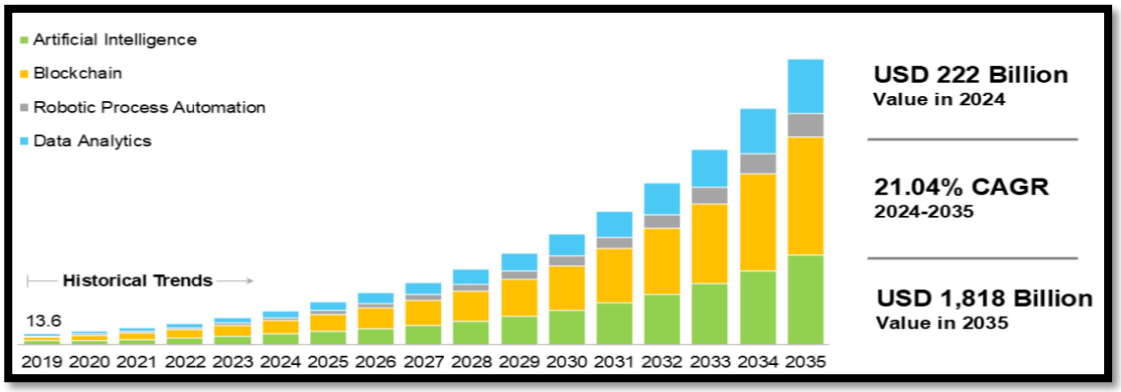

Figure 1: Fintech Market by type of technology (Source: Roots analysis, 2026)

The fintech market size is projected to grow from $ 222 billion in 2024 to $ 1,818 billion by 2035, representing a CAGR of 21.04%, during the forecast period 2024-2035. The increase in the significance of sustainability is also implied in the trends in the industry. With 45% of consumers around the world favouring fintech providers with green practices and 80% willing to change to eco-friendly financial products, there is a growing need and demand for sustainable fintech solutions (Srivastava, 2025). Also, fintech has been demonstrated to enable clean energy accessibility and worldwide collaborations in 67 nations, which is consistent with major Sustainable Development Goals (SDGs) . These trends indicate that fintech is not only redefining financial inclusion but also is a key part of the global sustainability agenda.

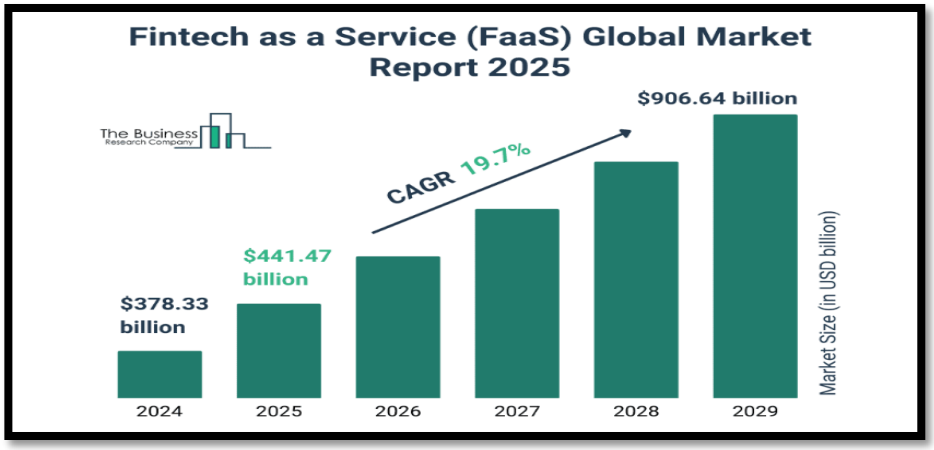

Figure 2: Fintech as a service global market report (Source: Coinlaw, 2026)

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The industry is expected to grow at a CAGR of 19.7, suggesting continued growth in the banking, payments, and API-powered fintech services. Nevertheless, this development does not rule out the fact that the current studies are rather fragmented. The literature concentrates on the financial inclusion or environmental results individually, with significant lack of integration of the overall work of fintech in the three economic, social, and environmental aspects. Also, the influence of fintech in developed economies (e.g., the US, UK, Germany) and emerging markets (e.g., India, South Africa, Indonesia) also differs considerably because of the differences in infrastructure, regulation, and institutional capacity (Sayari *et al.* 2025). This means that there is a research gap that is critical in terms of comprehending how fintech can be used to spur both inclusive growth and sustainable development on a global scale. This gap is filled in the current study, which offers an empirical study of global fintech in terms of sustainability and analyzes its multidimensional effect on countries at various levels of development. It seeks to assess how fintech is becoming a driver of sustainable economic development and environmental sustainability across the globe. The hypothesis of the study is that fintech use has a positive effect on sustainability outcomes on the global level, with more significant impacts observed in those countries that have developed digital infrastructure and institutional frameworks that facilitate it.

Methods

This paper uses a primary quantitative research design to explore how fintech can be used to enhance sustainability on a global scale. The survey is conducted online and therefore all respondents who are included in the survey are in different countries, and you get different economic backgrounds. The target market will include people aged 18 years and older, students, professionals, entrepreneurs, and users of fintech services of developed and emerging economies.

The total sample size of 210 respondents is chosen through a non-probability convenience sampling method because it will enable the researcher to collect the required data easily because the respondents were geographically spread. The respondents were 210 people aged 18 years and over who represented various parts of the globe including students, working professionals, entrepreneurs and fintech users of developed and emerging economies. Every interviewee was fairly familiar with digital financial services, which guaranteed a well-informed answer on the topic of fintech use and sustainability-related practices. The questionnaire used is a structured questionnaire with closed-ended questions to be used to analyze the level of fintech use, understanding of sustainable financial practices, and the perception of the role of fintech in the sustainability of the environment and economy. The answers will be collected in Likert-scale and multiple-choice options, to guarantee the consistency and to allow quantitative analysis.

The survey is conducted using Google Forms, which makes the survey anonymous and voluntary. All participants are informed to give informed consent before collecting data. The gathered data is then processed and analysed by use of the SPSS software where descriptive statistics, correlation and regression analyses are used to test the relationship between fintech adoption and sustainability outcomes.

Research Variables

Independent Variables (IVs)

IV1: Fintech Adoption

(Extent of usage of fintech services such as mobile banking, digital payments, and fintech apps)

1. Using fintech services has improved my financial efficiency.
2. Fintech platforms have made financial services more accessible to me.
3. Increased use of fintech has reduced my dependence on traditional banking systems.
4. Fintech adoption has enhanced my participation in the global digital economy.

IV2: Green Financial Awareness

(Awareness of environmentally sustainable financial practices)

1. I am aware of fintech services that promote environmentally sustainable practices.
2. Green financial products influence my choice of financial services.
3. Fintech platforms have increased my awareness of sustainable investments.
4. Awareness of green finance has encouraged me to adopt eco-friendly financial behaviours.

IV3: Digital Financial Inclusion

(Access to financial services through digital platforms across different populations)

1. Fintech services have improved financial inclusion for underserved populations.
2. Digital financial platforms have reduced barriers to accessing financial services globally.
3. Fintech has enabled low-income individuals to participate in formal financial systems.
4. Digital inclusion through fintech has supported equitable economic growth.

IV4: Sustainable Fintech Practices

(Use of fintech in promoting sustainability such as green investments, ESG integration)

1. Fintech companies actively promote environmentally sustainable financial practices.
2. Digital financial services contribute to reducing carbon footprints (e.g., paperless transactions).
3. Fintech platforms support investments in sustainable and green projects.
4. Sustainable fintech initiatives contribute to long-term economic and environmental benefits.

Dependent Variable (DV)

Global Sustainability Outcomes

(Economic, social, and environmental sustainability impact)

1. Fintech has contributed to sustainable economic growth globally.
2. Fintech innovations have helped reduce environmental impact.
3. Fintech has promoted more inclusive and equitable financial systems worldwide.
4. Overall, fintech plays a significant role in achieving global sustainability goals.

Results

Correlation Testing Results

Table 1: Correlation Test

Correlations

		IV1	IV2	IV3	IV4	DV
IV1	Pearson Correlation	1	.691**	.652**	.650**	.609**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	210	207	210	210	210
IV2	Pearson Correlation	.691**	1	.882**	.832**	.823**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	207	207	207	207	207
IV3	Pearson Correlation	.652**	.882**	1	.896**	.881**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	210	207	210	210	210
IV4	Pearson Correlation	.650**	.832**	.896**	1	.913**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	210	207	210	210	210
DV	Pearson Correlation	.609**	.823**	.881**	.913**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	210	207	210	210	210

**. Correlation is significant at the 0.01 level (2-tailed).

(Source: Researcher)

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To test the relationships between the four IVs (IV1, IV2, IV3, and IV4) and the DV, a Pearson correlation analysis was performed to assess the relationships between Fintech Adoption (IV1), Green Financial Awareness (IV2), Digital Financial Inclusion (IV3), and Sustainable Fintech Practices (IV4) and the dependent variable, Global Sustainability Outcomes (DV). Analysis was done based on the responses of up to 210 respondents.

The findings revealed that the independent variables had a positive and significant correlation with the dependent variable at the 0.01 level of significance (2-tailed). Global Sustainability Outcomes (DV) had a moderate positive relationship with Fintech adoption (IV1) ($r = .609$, $p < .001$). This showed a statistically significant association between the degree of fintech use and perceived sustainability outcomes.

The positive correlation between Green Financial Awareness (IV2) and the dependent variable was very strong ($r = .823$, $p = .001$). This meant that there was a high level of correlation between knowledge of sustainable financial practices and global sustainability performance. Digital Financial Inclusion (IV3), also demonstrated good positive correlation with the dependent variable ($r = .881$, $p < .001$), indicating high relationship between financial inclusion with fintech and sustainability results.

The most positive correlation was seen between Sustainable Fintech Practices (IV4) and Global Sustainability Outcomes (DV) ($r = .913$, $p < .001$). This meant that all the independent variables had the greatest association with the dependent variable.

Besides the relationships with the dependent variable, the strong correlations were also found between the independent variables. Fintech Adoption (IV1) was positively correlated with Green Financial Awareness (IV2) ($r = .691$, $p < .001$), Digital Financial Inclusion (IV3) ($r = .652$, $p < .001$), and Sustainable Fintech Practices (IV4) ($r = .650$, $p < .001$). Digital Financial Inclusion (IV3) exhibited very strong correlations with Green Financial Awareness (IV2) ($r = .882$, $p < .001$) and Sustainable Fintech Practices (IV4) ($r = .832$, $p < .001$). Digital Financial Inclusion (IV3) and Sustainable Fintech Practices (IV4) were also very closely related ($r = .896$, $p < .001$).

The number of samples (N) was 207-210 in various combinations of the variables. All of the reported significance values were less than.001, which proved that the relationships were statistically significant.

Altogether, the correlation table showed all the variables of the study to be positively and statistically significant, which means that the factors associated with fintech have a strong linear relationship with global sustainability outcomes .

Regression Analysis Results

Table 2: Regression test output

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.926[a]	.858	.855	1.84588

a. Predictors: (Constant), IV4, IV1, IV2, IV3

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4163.829	4	1040.957	305.511	.000[b]
	Residual	688.268	202	3.407		
	Total	4852.097	206			

a. Dependent Variable: DV
b. Predictors: (Constant), IV4, IV1, IV2, IV3
(Source: Researcher)

A multiple linear regression model was estimated to understand the effect of Fintech Adoption (IV1), Green Financial Awareness (IV2), Digital Financial Inclusion (IV3) and Sustainable Fintech Practices (IV4) on Global Sustainability Outcomes (DV). All the four independent variables were incorporated in the model.The model summary showed that the explanatory power was high with an R value of.926 which is a good correlation between the observed and the predicted values of the dependent variable. The value of R square was 0.858 which implies that 85.8 percent of the variation in global sustainability outcomes was attributed to the independent variables. The adjusted R Square was also found to be.855 and therefore the strength of the model was confirmed on the basis of the number of the predictors. The standard error of the estimate was 1.845888 which represents the average difference between the observed values and the regression line.The regression model turned out to be statistically significant as seen in the ANOVA results. The model generated an F-statistic of 305.511 with a degree of freedom (4, 202) and significance level of $p < .001$ meaning that the combination of independent variables was a significant predictor of the dependent variable.The overall number of squares was 4852.097 with 4163.829 of this amount being regression, and 688.268 being residual variation, which means that a large portion of the variation was accounted for by the model.All the independent variables were keyed into the model at the same time and their respective contribution was valued by way of regression coefficients. The general regression model established a significant linear association between the variables related to fintech and the global sustainability performance.The regression estimates were statistically significant and appropriate to explain the differences in sustainability outcomes of the sample. The value of R2 was high, which meant that the effect of fintech adoption, awareness, inclusion, and sustainable practices, in turn, explained a significant share of the difference in global sustainability results.

Coefficient Analysis Results

Table 3: Coefficient Analysis

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.313	.477		.658	.512
	IV1	-.051	.039	-.049	-1.307	.193
	IV2	.121	.062	.116	1.950	.053
	IV3	.255	.074	.246	3.442	.001
	IV4	.649	.063	.630	10.230	.000

a. Dependent Variable: DV
(Source: Researcher)

To analyze the contribution of each independent variable separately, the coefficients analysis was performed to determine the contribution of Fintech Adoption (IV1), Green Financial Awareness (IV2), Digital Financial Inclusion (IV3), and Sustainable Fintech Practices (IV4) to the dependent variable, Global Sustainability Outcomes (DV).

The constant (intercept) was associated with a coefficient (B) that was unstandardized (.313) and the p-value (.512) was not significant.

The coefficient (B) of Fintech Adoption (IV1) was unstandardized (-0.051), standard error of.039 and standardized beta (= -0.049). The t-value was -1.307, and the level of significance of the same was p =.193, which means that this variable was not significant in the model.

Green Financial Awareness (IV2) had an unstandardized coefficient (B) of.121, a standard error of.062 and a standardized beta ( ) of.116. The t-value was 1.950 and the level of significance was p =.053 a little bit more than the traditional level of statistical significance.

Digital Financial Inclusion (IV3) had a coefficient (B) of standardization of .255 with a standard error of.074 and a standardized beta (3). T-value was 3.442 and the level of significance = p =.001, so this variable has a statistically significant positive influence on the dependent variable.

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The biggest contribution was Sustainable Fintech Practices (IV4), with an unstandardized coefficient (B) of 0.649, a standard error of 0.063, and a standardized beta (0.630). The t-value was 10.230 and the significance level was p <.001 which means that the positive effect is very significant.

The standardized beta coefficients revealed that Sustainable Fintech Practices (IV4) was the most influential on Global Sustainability Outcomes, then Digital Financial Inclusion (IV3), and weaker impacts on Global Sustainability Outcomes were Sustainable Fintech Practices (IV2) and Fintech Adoption (IV1).

Comprehensively, the coefficient analysis revealed different degrees of contribution of fintech-related variables, as two variables had statistically significant impacts, and two variables did not meet the traditional levels of significance.

Discussion

The paper sought to explore the contribution of fintech to ensuring global sustainability by exploring 4 dimensions: fintech adoption, green financial awareness, digital financial inclusion, and sustainable fintech practices. The results of the correlation, regression, and coefficient analyses will be valuable to understand the role of fintech in achieving sustainability in different global settings.

The correlation results showed that the four independent variables were all positively and significantly correlated with the global sustainability outcomes. This implies that fintech, in its diverse forms, is generally consistent with sustainability goals on a global scale. Among the variables, sustainable fintech practices and digital financial inclusion demonstrated the most robust correlation with sustainability outcomes, with green financial awareness and fintech adoption next. The findings are in line with the current body of literature, which recognises fintech as a major facilitator of sustainable development, especially in its potential to increase financial inclusion, lower transaction costs, and encourage financial behaviours that are environmentally-friendly. Surveys in various countries have also established that digital finance and fintech innovation are part of Sustainable Development Goals (SDGs) being met, particularly in poverty alleviation, financing clean energy, and inclusive economic development.

The regression analysis also helped explain these relationships by determining the relative contribution of each variable in consideration. This model was found to be highly explanatory with 85.8 percent of the variance in the worldwide sustainability outcomes being attributed to the four independent variables. It means that the factors associated with fintech have a significant contribution to the process of sustainability worldwide. Nevertheless, the individual impacts of the variables were very different.

The most powerful and meaningful indicator of the global sustainability results was sustainable fintech practices. This underscores the need to incorporate environmental, social, and governance (ESG) principles into the work of fintech. Activities like going paperless, green investment platforms, and digital tools that help in climate finance seem to directly and quantifiably affect sustainability. According to Xian (2024), the discovery is consistent with the existing research in the world that emphasizes that fintech could serve as a catalyst to green finance by enabling investments in renewable energy and environmentally friendly projects.

Conversely, as per Gupta *et al.* (2023), green financial awareness and fintech adoption were not found to have statistically significant effects in the regression model, although they were strongly correlated with the dependent variable. This indicates that although the factors are linked with sustainability outcomes, they might be influenced directly by other variables like inclusion and sustainable practices. As an example, implementing fintech services can not necessarily result in sustainability gains unless the services are developed with sustainability goals. Equally, the knowledge on green finance might fail to achieve tangible results in the absence of access to the corresponding finance tools and platforms.

The findings are a part of a larger theme in the literature: the quality, purpose, and use of digital financial services can drive fintech to achieve sustainability, not just access and awareness. As per the notion of Udeagha and Muchapondwa (2023), these relationships are also impacted in global contexts by differences in the infrastructure, regulatory frameworks, and the institutional capacity. Advanced fintech ecosystems and more regulatory backing can be beneficial to developed nations, and financial inclusion programs can have a greater impact in emerging economies. Such diversity highlights the necessity of context-based strategies to sustainability through fintech.

In spite of its contributions, this study has a number of limitations. To begin with, the non-probability convenience approach to sampling restricts the generalisability of the results to the entire world. The sample of 210 respondents, though sufficient to perform statistical analysis, might not be representative of the diversity of fintech use and sustainability practices in various countries. Second, the use of self-reported data promotes the risk of bias in the responses as the views of the participant may not be a true representation of the actual behaviours or results. Third, the study design is cross-sectional, which limits the possibility of establishing causality between variables of fintech and the sustainability outcomes. The associations noted are likely to vary with time as fintech technologies and regulatory environments develop.

Also, there is no explicit consideration of regional differences in the study, including the differences between developed and developing countries, or the differences in income level, education, and digital infrastructure. Such variables may have a great impact on both sustainability outcomes and fintech adoption. The correlations between independent variables are also high and it is also possible that multicollinearity exists which might influence the accuracy of regression estimates.

These constraints give some guidelines on how future research can be done. Future research may be designed as longitudinal to investigate the development of the fintech and sustainability relationship over time. The findings would have been more representative with a larger sample size and by employing probability sampling methods. The researchers might also perform comparative research across regions or countries to gain a better insight into the effect of contextual factors on the impact of fintech on sustainability. The inclusion of qualitative techniques, including interviews or case studies, may give more information on how people and organisations use fintech in sustainable manners.

Furthermore, further studies might examine other variables, including regulatory frameworks, technological innovation, and environmental policies, to create a more holistic fintech-driven sustainability model. The analysis of sector-specific applications, e.g. fintech in funding renewable energy or sustainable supply chains, might also provide useful information.

Conclusively, this research shows that fintech has a great role to play in promoting global sustainability, especially in the form of sustainable practices and finance inclusion. But it remains to be effective depending on the ways that these technologies are put in place and incorporated into larger economic and institutional systems.

Conclusion

In this paper, the authors assessed the connection between fintech and global sustainability through four dimensions, namely, the adoption of fintech, green financial awareness, digital financial inclusion, and sustainable fintech practices. The results are good indications that fintech is very important in promoting the sustainability outcomes at a global scale, especially when digital financial systems are aligned to inclusive and environmentally responsible practices.

The findings revealed that although all fintech-related variables positively correlated with sustainability, sustainable fintech practices and digital financial inclusion were the most significant. These results emphasize the need to incorporate sustainability concepts into the functioning of fintech and make digital financial services more accessible to underserved groups. Inclusion through Fintech empowers more people to engage in economic activities, minimize inequalities, and long-term social and economic development. Simultaneously, green investment platforms and paperless transactions, which are examples of sustainable practices in the fintech industry, are explicitly aimed at achieving environmental objectives.

Nevertheless, the research also found out that the use of fintech and green financial awareness, in turn, could not have a pronounced impact on sustainability outcomes when taken in combination with other variables. This implies that access and awareness should be used with effective use and encouraging institution structures in order to make a meaningful impact. The mere upsurge in the use of fintech without paying attention to sustainability can curtail its prospects.

Generally, this research concludes that fintech can be an effective initiator of global sustainability, however, its success relies on its implementation and integration into financial systems. Technology providers, policymakers, and financial institutions need to focus on inclusive, accessible, and sustainability-related fintech solutions. It will be necessary to strengthen digital infrastructure, enhance financial inclusion, and support sustainable innovation to make sure that fintech will contribute to the balanced and equitable global development.

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