

Digital Banking and Gig Workers' Green Behaviour: The Intervening Role of Financial Inclusion and Sustainable Bank Initiatives

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<https://doi.org/10.5755/j01.ee.35.5.34631>

The digital banking system bridges the gap between green and sustainable activities by encouraging sustainable behaviour and empowering financial institutions to provide eco-friendly services. This study examines how financial inclusion and sustainable bank initiatives mediate the association between digital banking and gig workers' green behaviour. This study utilised a quantitative survey methodology, based on data from gig workers in India who have used banking services for at least 10 years. The final sample consisted of 247 responses from gig workers aware of banks' sustainability initiatives. Data was analysed on AMOS, SPSS version 25 for confirmatory factor analysis. The sequential mediation model was analysed using Process Macro. Findings suggest that financial inclusion and sustainable bank initiatives are having a significant influence on expanding gig workers' access to sustainable financial goods and services, encouraging sustainable behaviour, and providing incentives for it. The study's findings provide policymakers with valuable insights into how they can incentivise banking institutions to adopt digital banking as an influential tool for dealing with financial exclusion and promoting sustainable banking practices. These policy measures are anticipated to have a favourable effect on gig workers' green behaviour.

Keywords: *Digital Banking; Financial Inclusion; Green Behavioural Intention; Gig Worker.*

Introduction

Fintech has transformed traditional services into digital realms. However, on a global scale, countries face two significant challenges: a) insufficient job growth to absorb the labour supply and b) a surge in non-traditional employments with lower wages and job security concerns. This dual challenge is constrained to the established social and economic model of the latter half of the twentieth century. It especially raises questions around work for the middle-class and the effectiveness of traditional labour and welfare policies. Despite these challenges, the gig economy has experienced remarkable growth. It provides individuals with flexible work opportunities and is closely tied to the allocation and utilisation of physical capital. However, a major obstacle arises as many low-income individuals lack the financial capital that is sorely needed to initiate businesses. Hence, they become dependent on financial institutions such as banks. In response, some governments have introduced various financial schemes to support gig workers. For example, central governments in India provide financial support to gig workers who engage in green practices. Simultaneously, government policies encourage various institutions, including financial entities, to support innovative arrangements that safeguard gig workers to ensure efficiency and to promote sustainable initiatives.

In the current financial landscape, the digital banking keyword has become revealing among banking topics (Kaur *et al.*, 2021; Meher *et al.*, 2021). It has redefined the ways in which individuals conduct banking and financial transactions. It is oriented towards being more practical, effective and open to a larger variety of customers. Basically, digital banking is the practice of conducting

financial transactions and using banking services through digital channels such as internet, mobile, and other digital platforms (Guerra-Leal *et al.*, 2022; Indriasari *et al.*, 2022; B. Kaur *et al.*, 2021). Therefore, it can be said that digital banking has a lot of advantages. On a broader note, convenience and accessibility are two of the most favourable aspects of digital banking. Moreover, digital banking enables users to access their bank accounts and carry out transactions at their convenience. Furthermore, customers who reside in rural or distant locations can benefit from such digital initiatives. It gives customers access to banking services that they might not have had previously. Also, digital banking plays a key role in promoting green behaviour among customers as the world places a cumulative emphasis on sustainability (Ananda *et al.*, 2020; Sutikno *et al.*, 2022; Wadesango, 2020).

Financial Institutions are an important entity which creates positive attitudes toward sustainability. Banks can create financial awareness and promote the adoption of green practices. This effect can be more prominent for gig workers who mostly rely on financial institutions' services. This process helps to manage their finances in a more sustainable manner. Gig workers can have access to financial services that were previously out of their reach (Greene, 2020). Hence, financial inclusion could be increased (Apouey *et al.*, 2020; Roy & Shrivastava, 2020). On the other hand, the environmental effects of economic activities also raised concerns for sustainability (Mandikonza & Lotz-Sisitka, 2016). This has led to a greater emphasis on green behaviour. As, ecological responsibility can minimise carbon impact, hence, gig workers have an opportunity to take greener actions.

Firstly, the use of less paper is one of the important ways that digital banking promotes environmentally friendly behaviour (Dayananda, 2020; Gonzalez *et al.*, 2022; Ibnou-Laaroussi *et al.*, 2020; Kuchinka *et al.*, 2018). Using digital banking applications instead of paper can considerably decrease the amount of waste produced. Basically, gig workers who are doing more financial transactions as part of the nature of their business organisation, can reduce paper waste and assist resource conservation by choosing paperless statements and bills (Soukalová, 2015). In the previous 40 years, the demand for paper has increased globally by 400%, and 35% of the trees cut down globally are used to make paper, according to research by the World Wildlife Fund (The Paperless Project, 2014). This demonstrates the potential contribution that digital banking can make to cutting down on paper use and encouraging eco-friendly practices.

In the past, gig workers often faced difficulties in accessing banking facilities due to their non-traditional work arrangements (Behera & Gaur, 2022; Bruckner & Forman, 2021; Moore, 2019). This limited their ability to participate fully in the economy, in saving, limited their access to credit, and to reach for other financial services. However, in the current scenario, gig-workers use a variety of financial products and services from their digital devices due to the revolution that digital banking has brought about in the manner that financial services are delivered (Dayananda, 2020). Financial inclusion is greatly enhanced by digital banking (Krishna, 2021; Rahman, 2016). Furthermore, digital banking has the potential to provide access to sustainable financial products, in addition to lowering paper use and travel (Sutikno *et al.*, 2022; Wadesango & Magaya, 2020). Digital banking systems are mostly utilised to provide financial services and products that are favourable to the environment, such as green loans and renewable energy investment opportunities. Financial institutions also encourage clients to adopt more environmentally friendly ways and invest in making these products available to them.

More recently, gig workers are able to engage in the gig economy more productively and efficiently due to digital banking services (Krishna, 2021; Rahman, 2016). Gig workers can easily track their cash flows and organise their budget because their benefits are immediately available to them. Hence, they can work more independently and take on more projects. Also, it can increase their revenue and give them financial security. Furthermore, financial institutions encourage clients to adopt more sustainable practices to contribute to a more sustainable future.

This study is based on Social Cognitive Theory (SCT) (Bandura, 1986) and Institutional Theory (DiMaggio & Powell, 1983). SCT posits that entities learn and model behaviours through observation and social interactions. This theory provides a lens with which to explore how financial institutions adopt green behaviours within their professional and social networks. Furthermore, as per institutional theory (DiMaggio & Powell, 1983), we recognise the influence of institutional pressures on organisational behaviour. In the banking sector, for instance, financial institutions play a pivotal role in fintech and digital banking. Also, these institutions play a vital role in the adoption of sustainable practices. Hence, in order to understand the interplay

between individual attitudes and institutional pressures, it is essential to know the factors which can influence green behaviour.

The economy is growing rapidly, encompassing diverse job roles and industries. Hence, analysing the green behaviour of gig workers can uncover unique challenges and opportunities for sustainability. The importance of green behaviour is universally acknowledged, but still there is a notable dearth of research on the relationship between financial institutions and gig workers financial behaviour. The previous literature lacks an in-depth exploration of the specific challenges and motivators that influence green behaviour. Therefore, this study seeks to address this gap based on sequential mediation of financial inclusion and sustainable banks' initiatives on the relationship between digital banking and green behavioural intention.

Problem Statement

Gig economy is characterised by the recent surge in non-traditional employment. Among gig workers, financial well-being and sustainable practices are the emerging concerns. The dual challenge of insufficient job growth and the dependence on financial institutions raised persistent questions about the effectiveness of traditional labour and welfare policies. Despite the remarkable growth of the gig economy the lack of financial capital among gig workers hinders their ability to initiate businesses. It has resulted in a significant reliance on banks. Moreover, the advent of digital banking necessitates an exploration of its role in order to influence sustainable behaviours among gig workers. This study aims to address this gap as it examines the mediating role of financial inclusion and sustainable bank initiatives in the association between digital banking and gig workers' green behaviour. This study aims to provide valuable insights for policymakers and financial institutions to foster sustainable practices.

Significance of the Study

This study holds significant importance as it analysed the effect of digital banking on gig workers' green behaviour. Furthermore, this study explores the mediating effect of financial inclusion and sustainable bank initiatives on the above-mentioned association. In a world where gig work is on the rise and digital banking has become today's banking synonym, it is important to find out the factors which influence sustainability. The findings of this study will help policymakers to shape strategies that can support gig workers. Mainly, the findings can direct gig workers to become financially connected with banks. Also, it encourages green practices which can enhance access to sustainable financial services. Furthermore, this study contributes practical insights that can lead to positive changes in the gig economy. It promotes both financial well-being and environmental responsibility among gig workers.

Literature Review and Hypotheses Development

Theoretical Framework

Social Cognitive Theory offers a valuable approach through which we can understand the mechanisms that

influence the sustainable initiatives of financial institutions. Also, SCT provides a useful framework to examine how financial institutions' practices shape gig workers' green behaviour. Essentially, it emphasises how cognitive, personal, and environmental factors interact to determine entities' behaviour (Bandura, 1986). This theory works chiefly on three core concepts: 1) outcome expectations, 2) self-efficacy and 3) facilitation.

Mainly, SCT states that individuals' beliefs about the potential outcomes of a behaviour shape their motivation to perform it. In financial institution, this theory suggests that banks can encourage gig workers' green behaviours by positively influencing their outcome expectations. It highlights the personal benefits (cost savings), social advantages (peer approval), and environmental rewards (preserving nature) of sustainable financial choices that may make gig workers expect more favourable outcomes from green banking. Banks can strengthen gig workers' intentions to act sustainably with these outcome expectations. SCT emphasises self-efficacy in the ability to perform a behaviour as a key driver of action. Banks can strengthen gig workers' confidence in adoption of green financial practices. It provides gig workers the capacity to translate pro-environmental intentions into action. Such banking options foster greater adoption of sustainable solutions. Finally, SCT emphasises green facilitation processes. Features like online paperless accounts, default e-statement enrolment, green investment and financial perks for eco-actors all can provide sustainable opportunities.

Institutional Theory is focussed on cultural weights to follow expected structures and practices. This framework applies to banks so as to adopt sustainable initiatives. Banks implement green finance products to enhance their legitimacy. Through this process, banking practices start to reflect as a wider cultural value focussed toward sustainability. As trusted institutions, banks' integration of environmentalism helps diffuse green norms within society. Gig workers are especially inclined to such normative pressures channelled through banks' cultural alignment with pro-environmental values. Such association can expose gig workers to green social cues. It can shape their own ecological awareness and behaviours to match prevailing sustainability expectations. Institutional Theory explains how digital banking channels allow banks to increase their cultural influence and transmit pro-environmental norms to shape gig workers' green behaviour. This theoretical approach provides a multidimensional outlook of digital banking transformations and gig workers' interactions to shape a green financial environment.

The existing body of literature presents different perspectives on the relationship between digital banking and green innovation within the context of gig workers. Proponents of digital banking argue that its adoption enhances sustainability as it promotes paperless transactions, helps in waste reduction, and fosters eco-friendly practices (Ananda *et al.*, 2020; Sutikno *et al.*, 2022; Wadesango, 2020). This school of thought emphasises the significant potential for digital banking to contribute to environmental conservation as evidenced by the reduction in paper usage and the adoption of sustainable financial products (Gonzalez *et al.*, 2022; Ibnou-Laaroussi *et al.*, 2020; Soukalova, 2015). However, other schools of thought

suggest that the environmental impact of digital banking is not explicitly positive. A few studies have argued that the spread of digital transactions may lead to an increase in electronic waste and energy consumption associated with data centres and electronic devices (Pori *et al.*, 2021; Joshi *et al.*, 2023). This critical perspective urges a detailed examination of the potential trade-offs and unintended consequences associated with the digitalisation of financial transaction services in the pursuit of green innovation. Through a thorough review of different viewpoints, this study aims to contribute to a more comprehensive understanding of the complex dynamics between digital banking and green practices among gig workers.

Digital Banking and Green Innovation

Green innovation covers the development of environmentally sustainable practices and technologies across various sectors. In the context of digital banking, it refers to the integration of eco-friendly initiatives within the framework of financial services. The intersection of digital banking and green innovation has become a subject of cumulative interest. It considers the global push towards sustainable development and the reliance on digital financial solutions.

Previous literature marked the association between digital banking and green innovation. It highlights several key aspects. One crucial link lies in the inherent environmental benefits of digital transactions compared to traditional banking methods. Digital banking significantly reduces the need for physical infrastructure, paper usage, and transportation. Hence, it leads to a lower carbon footprint.

Lee *et al.* (2022) emphasised the significant reduction in carbon footprint because of digital banking. Digital transactions inherently reduce the need for physical infrastructure such as bank branches and use of paper for statements and transactions. Lee *et al.* (2022) argued that digital banking contributes to a more sustainable and eco-friendlier financial ecosystem. Moreover, Cano & Domenech-Asensi (2011) stated that the energy efficiency can be achieved through digital banking. Their study demonstrated that the electronic transmission of financial information consumes considerably less energy compared to traditional paper-based processes. This reduction in energy consumption aligns with the principles of green innovation. It can also minimise the overall environmental impact of banking activities. The encouragement of paperless practices among consumers through digital banking platforms has been a focal point in promotion of environmental responsibility. Bekhet *et al.* (2014) indicated that the integration of e-statements, electronic bill payments and other paperless features in digital banking applications contributes to resource conservation. It aligns with green innovation objectives. Also, it reflects a broader societal shift towards sustainable practices facilitated by advancements in technology. Digital platforms offer gig workers convenient and efficient financial tools to enable them to manage income, track expenses and receive payments seamlessly. This integration of financial services into digital ecosystems can potentially shape gig workers' ecological awareness and practices.

Digital Banking and Gig Workers Green Behaviour

Digital banking and green behaviour have emerged as concepts that provide gig workers with accessible, eco-friendly, and responsible financial services (Sakanko *et al.*, 2020). Digital banking started with the launch of the first Automatic Teller Machines (ATMs) in the 1970s. ATM services enabled customers to conduct transactions without visiting a bank location. Now it has expanded to online banking, mobile banking, digital wallets, and contactless payments (Adeoye, 2012). On the other hand, green behaviour started as an environmental movement in the 1960s and 1970s. Further, it led to the introduction of environmental laws and sustainable business strategies mainly in the 2000s (Dincer *et al.*, 2014).

Recently, green behaviour became a top priority for gig workers, small businesses, and governments worldwide (Anwar & Graham, 2020). Many firms have set sustainable goals, such as reduction in their carbon footprints and using renewable energy (Friedland & Balkin, 2023; Smith *et al.*, 2021). Gig workers also prefer to work with firms that promote sustainability and use environmentally friendly goods in greater numbers (Schor & Attwood-Charles, 2017). Interestingly, digital banking is a more environmentally conscious and sustainable alternative to traditional banking. It can reduce the need for paper-based transactions such as cheques and bank statements. It can enable gig workers to conduct transactions online or via mobile applications to minimise paper waste. Thus, it decreases the environmental impact of banking. Therefore, the study proposes:

H1: The adoption of digital banking among gig workers positively affects their green behaviour, resulting in a more sustainable financial ecosystem.

Digital Banking and Financial Inclusion

In response to the worldwide problem of financial exclusion, the idea of financial inclusion first appeared in the 1990s (Leyshon & Thrift, 1995). Financial exclusion refers to the lack of formal financial services (Adami, 2022; Alonso *et al.*, 2022). Financial exclusion and poverty typically go hand-in-hand which may lead to a vicious cycle of exclusion. Therefore, the World Bank has advanced financial inclusion on a global scale (Gwinner *et al.*, 2006; Koku, 2015; Solo, 2008). The Global Findex Database on financial inclusion was introduced by the World Bank in 2008 (Demirguc-Kunt *et al.*, 2018; Demirguc-Kunt *et al.*, 2020). The World Bank wants to guarantee that by 2020 every person has access to a financial transaction account to conduct financial activities. (Koomson *et al.*, 2020; Siddik & Kabiraj, 2019). Therefore, digital banking has the potential to influence financial inclusion. Banks can offer several financial services that are easier to use and more economical than conventional banking.

Therefore, the study hypothesises:

H2: Digital banking (DB) has a positive influence on financial inclusion (FI)

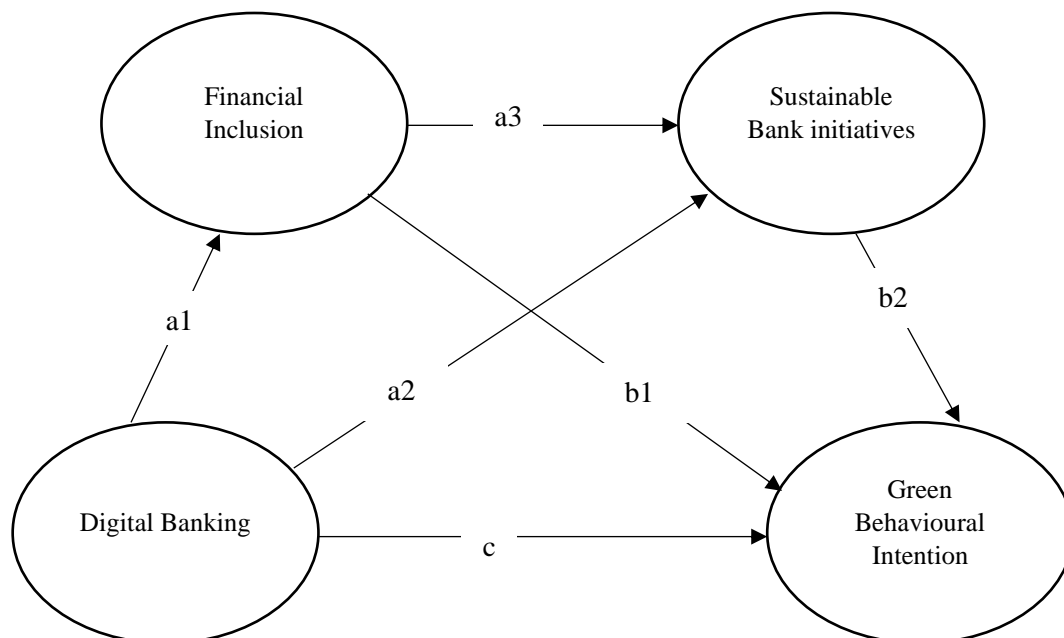


Figure 1. Hypothesised Research Model

Digital Banking and Sustainable Bank Initiatives

During late 1990s and early 2000s, banks started to pay attention to the environmental and social effects of their operations, which led to the advance of the sustainable banking concept (Kirkpatrick & Green, 2002). Since then,

the growth of digital banking has given banks new opportunities to implement more environmentally friendly procedures. Banks are now open to provide a variety of sustainable financial products such as green loans and green bonds (Prorokowski, 2016; Weber, 2005). Basically, green loans are loans with a focus on financing ecologically

friendly initiatives, for example renewable energy (Li *et al.*, 2018; Ozili, 2023; Zhang, 2022). They are somewhat similar to regular bonds. Green bonds are also issued as debt instruments and used to fund environmentally friendly initiatives (Bhutta *et al.*, 2022; Fatica *et al.*, 2021; Gilchrist *et al.*, 2021).

The association between digital banking and sustainable practices is a relatively new area. While digital banking has given banks new means to implement sustainable practices, it is expected to develop further innovative to lessen their environmental effects and enhance their sustainability performance. Therefore, the study hypothesises:

H3: Digital banking has a positive impact on sustainable bank initiatives.

Digital Banking, Financial Inclusion, Sustainable Bank Practices, and Gig Workers' Green Behaviour

The development of digital banking has significantly improved global financial inclusion. It is especially highly beneficial for gig workers who could have had difficulty in accessing traditional banking services (Alnemer, 2022; Julião *et al.*, 2023; Kouladoum *et al.*, 2022; Ranabhat *et al.*, 2022). With digital banking, banks are able to reach those who live in rural or distant areas. Banks provide support to open a new bank account (Dogan *et al.*, 2022; Malik & Malik, 2022). Financial inclusion is critical to promote economic growth. Digital banking has the potential to make financial services more affordable and accessible to gig workers who were previously excluded from the traditional banking system (Ben Naceur *et al.*, 2020; Kling *et al.*, 2020; Lee *et al.*, 2022; Liu *et al.*, 2021; Ozili, 2021; Chen *et al.*, 2023, Ashraf 2023).

In addition, digital banking has enabled banks to offer sustainable financial instruments such as green products that support environmentally friendly initiatives, including renewable energy projects. As a result, it is suggested that digital banking, financial inclusion, and sustainable banking operations have a significant impact on gig workers' green behaviour (See Figure 1). Therefore, the study hypothesises:

H4: Financial inclusion and sustainable bank initiatives mediate the relationship between digital banking and green behavioural intention. First, digital banking positively influences financial inclusion which, in turn, improves sustainable banking initiatives, which improves green behavioural intention.

Plan of Study

The plan of this study involves quantitative survey methodology to investigate the relationship between digital banking, financial inclusion, sustainable bank initiatives, and gig workers' green behaviour. We employed confirmatory factor analysis on AMOS and SPSS version 25. The chosen sample size of 247 responses were focussed on gig workers' awareness of banks' sustainability initiatives. The study employs a sequential mediation model analysed with the Process Macro to examine the mediating effect. This approach aims to provide insights into the mechanisms through which digital banking influences gig

workers' access to sustainable financial services. The methodology aligns with the study's aim to provide suggestions to policymakers and financial institutions so they can leverage digital banking to address financial inclusion and can promote green practices.

Methodology

To analyse the proposed hypotheses, gig workers who have been using banking services for a minimum of the last 10 years were approached. Banks in India are viewed in the country as an important participant in sustainable initiatives and are recognised for their role in channelling effective financial inclusion policies. To efficiently manage their connectivity, several banks have established multiple branches in India. A survey was conducted using Dillman's survey structure method, and the participation was voluntary and kept confidential (Dillman, 1991). A pilot study was conducted with five bank managers, 10 academicians, and 18 adjunct employees to develop the questionnaire. The final questionnaire was prepared based on the responses and suggestions from the pilot phase.

The study surveyed 300 gig workers in order to analyse the proposed hypotheses. The sample was determined in accordance with convenient and purposeful sampling methods. The researchers established interactions with freelancers who were actively engaged in part-time employment and actively engaged in banking services usage. Online surveys were employed in the study to collect information and the responses were distributed to the chosen participants via email and social media accounts. The purpose of the survey questionnaire was to collect data on the participants' use of digital banking services, financial inclusion, and green practices. The proposed hypotheses were tested using statistical analysis of the responses.

The data was collected from 08 August 2022 to 20 January 2023, from 278 respondents who were aware of the bank's sustainable policies and procedures; after eliminating incomplete and outlier responses, 247 responses were used for analysis. Outliers and common method variance were examined using the SPSS 25 version, and non-response bias problems were addressed using a two-sample t-test. Non-response bias problems were not discovered in the data. Prior estimates were made for the sequential mediation model using the bootstrapping approach and the process macro software (Hayes, 2015), the study analysed descriptive statistics to understand the nature of data, the Pearson correlation coefficient to know the relationship structure among variables, and CFA to know the validity, reliability, and model goodness of fit.

Measures and Analysis

Digital Banking (DB)

In accordance with Ananda *et al.* (2020), four questions were used to evaluate the security, transaction cost, awareness and online features of digital banking. The scale elements were "Safety and free from monetary losses", "Relatively cheaper transaction cost", "Availability of latest and accurate information" and "Active, interactive facilities (clear instructions, help functions, FAQs, feedback, review transactions, etc.)". Each question was assigned a rating

level from one to five, where one denoted "strongly disagree" and five denoted "strongly agree". For this specific factor, the scale's reliability was 0.83.

Financial Inclusion (FI)

Four scale items were used to evaluate financial inclusion (Rastogi & Ragabiruntha, 2018). A Likert scale with a maximum score of five was used to evaluate the respondents' replies. The scale items were "Desirable to take credit/loan services from the bank", "Prefer banks for borrowing rather than money lenders", "Preference for

savings and deposits through banks" and "Banking services are helpful to protect our financial interests and prevent us from being exploited by money lenders". For this specific factor, the scale reliability was 0.83.

Sustainable Bank Initiatives (SBI)

SBI was evaluated with three items that were taken from Trott (2020). Scale items were focussed on "Greening IT infrastructure,,," "Explaining business and environmental values" and "Incorporating environmental consideration". The scale reliability value (Cronbach alpha) was 0.75.

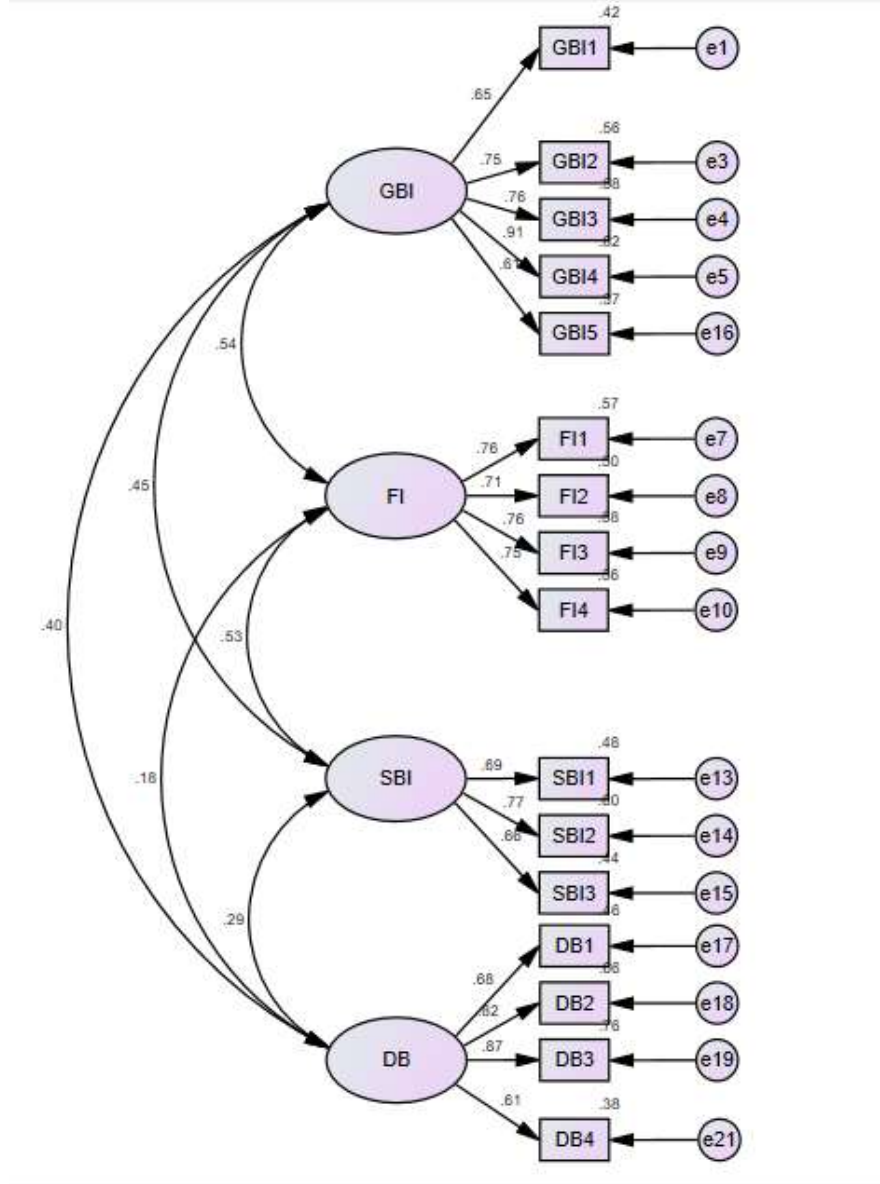


Figure 2. Confirmatory Factor Analysis

Green Behavioural Intention (GBI)

Five scale items were taken from Zhang et al. (2021) to evaluate GBI. The scale items were "I would give some of my income if I knew the money would be used to prevent environmental pollution", "I would agree to an increase in taxes if the extra money were used to prevent environmental pollution" and similar statements. "The government should

lessen environmental pollution, but it shouldn't cost me any money", "I quickly connect sources of environmental knowledge to problem-solving" and "I use environmental knowledge to improve efficiency". The scale reliability for GBI was 0.85.

Table 1

Factors	Rotated Component Matrix			
	Component			
	1	2	3	4
FI1		0.746		
FI2		0.797		
FI3		0.804		
FI4		0.786		
GBI1	0.733			
GBI2	0.734			
GBI3	0.772			
GBI4	0.823			
GBI5	0.696			
SBI1				0.767
SBI2				0.744
SBI3				0.807
DB1			0.732	
DB2			0.853	
DB3			0.852	
DB4			0.731	

Note: Extraction Method: Principal Component Analysis Rotation Method: Varimax with Kaiser Normalisation a. Rotation converged in 6 iterations

Control Variables

Awallia & Famiola (2021) and Singh & Khandelwal (2021) stated that green behavioural intention could be influenced by factors such as gender, age, and income of the respondents. Hence, in the mediation model, these variables were included as covariates.

Results

Table 1 presented the rotated component matrix that resulted from a Principal Component Analysis with Varimax rotation and Kaiser normalisation. The table outlined the factor loadings for each variable under the identified components. Four factors (one to four) represent distinct dimensions within the dataset. For Factor 1 (FI1 to FI4), the variables exhibited substantial loadings ranging

from 0.746 to 0.804. It indicates a strong association within this factor. Similarly, Factor 2 (GBI1 to GBI5) demonstrated high loadings ranging from 0.733 to 0.823. It suggests a consistent relationship among the respective variables. Factor 3 encompassed the variables related to SBI (SBI1 to SBI3) with loadings ranging from 0.767 to 0.807. Finally, Factor 4 (DB1 to DB4) displayed notable loadings ranging from 0.732 to 0.853. It indicates a pronounced connection within this factor. The successful convergence of the rotation in six iterations added reliability to the identified components. It provides a structured understanding of the primary relationships among the financial indicators (FI), green banking indicators (GBI), sustainable behaviour indicators (SBI), and digital banking indicators (DB) in the study.

Table 2

Descriptive Analysis with Pearson Correlation Coefficient

	Mean	SD	AVE	CR	DB	SRM	OR	OP
DB	2.88	0.65	0.56	0.83	1			
SBI	3.50	0.57	0.50	0.75	.349**	1		
FI	3.33	0.81	0.55	0.83	.210**	.630**	1	
GBI	3.26	0.61	0.55	0.85	.439**	.531**	.610**	1

(* p < 0.050), (** p < 0.010)

Table 2 shows the descriptive statistics of the data, with mean scores for DB, SBI, FI and GBI all above 2.5. The main variable of interest, DB, was found to have a significant association with SBI (r=0.349, p < 0.01), FI (r=0.21, p < 0.01) and GBI (r=.43, p < 0.01), providing initial support for all study hypotheses. The study also checked for multicollinearity using the variation inflation factor (VIF) and found no issues, as all VIF values were below 10.

In order to confirm the observed variables' factor structures, the research employed CFA (CMIN/DF = 1.93, CFI = 0.94, and RMSEA = 0.06, respectively). The findings revealed that each factor had a significant factor loading value of more than 0.5 (Fornell & Larcker, 1981, See Figure 2). The study's discriminant validity was also examined and

the results showed that all of the variables were distinct. The AVE value for each factor was over 0.5.

The study utilised the process macro mediation analysis, utilising the OLS approach to analyse both direct and indirect effects, in order to examine the serial mediation impact between DB and GBI. Additionally, the bootstrapping method was employed to estimate the effect size of the mediation model, avoiding any assumptions of a normal distribution (Preacher *et al.*, 2007).

Table 3

Mediation Analysis of FI, and SBI

Effect	Point Estimate	SE	BC 95% CI	
			Lower	Upper
IND 1: DB →FI→CGB	0.0900	0.0387	0.0178	0.1701
IND 2: DB →SBI→CGB	0.0311	0.0199	-0.012	0.0761
IND 3: DB →FI→SBI→CGB	0.0165	0.0121	-0.0009	0.0444
Total Ind Effect	0.1376	0.0513	0.0402	0.2408
Direct effect of DB on CGB (C')	0.2764	0.0455	0.1868	0.3660
Total effect of DB on CGB (C)	0.4140	0.0536	0.3084	0.5197

Source: Created by authors

Figure 3 displays the process model's final outcomes. GBI is not influenced by the control variables (gender, age, and income). DB and GBI are positively related in the primarily interaction model ($c1=0.41$, p 0.001). When FI and SBI are taken into account as mediators, the coefficient becomes lower from 0.41 to 0.27, meaning that the effect size declines, indicating partial mediation. Hence, significant indirect effects between DB and GBI supported partial mediation. Table 4 represents the sequential mediation model.

According to the research, FI significantly affects how DB and GBI are related (IND1: $a1*b1 = 0.090$; BC-CI [0.0178-0.1701]). The association between DB and GBI was also shown to be significantly mediated by SBI (IND-2: $a2*b2 = 0.031$; BC-CI [-0.012-0.0761]). The relationship between DB and GBI was significantly mediated by FI and SBI in a sequential manner (IND-3: $a1*a3*b2 = 0.0165$; BC-CI [-0.0009-0.0444]). H1, H2, H3, and H4 were thus supported.

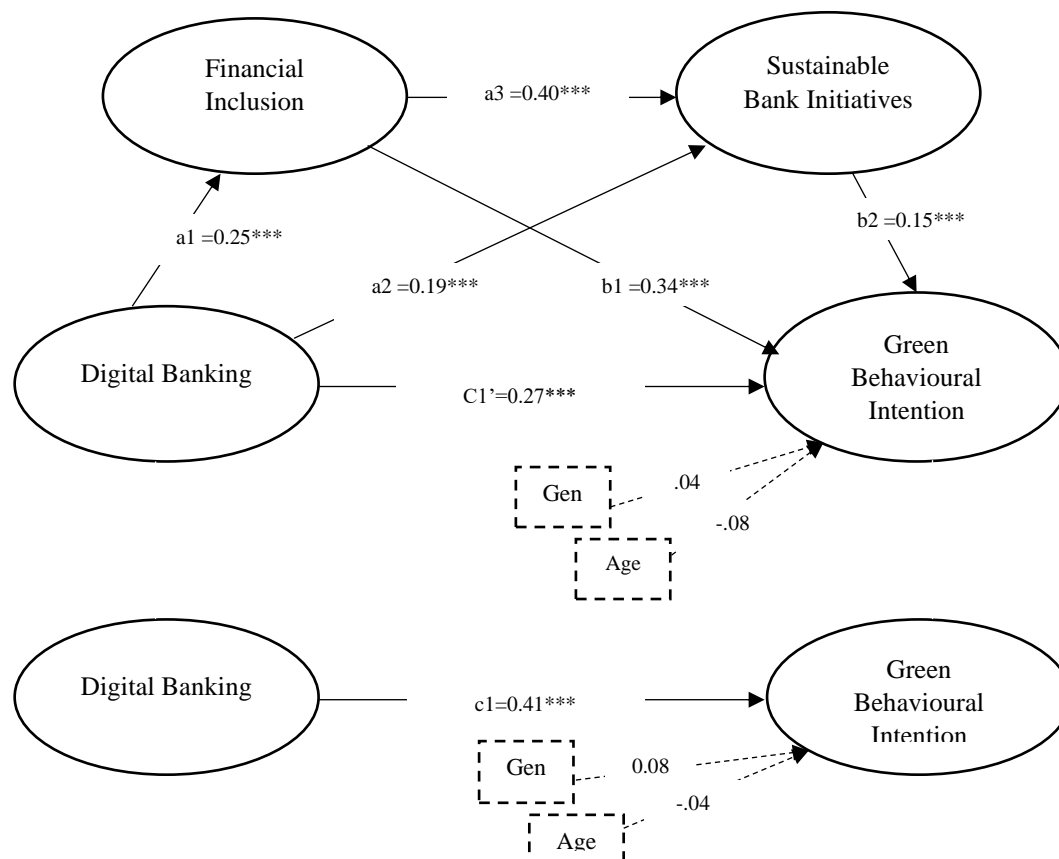


Figure 3. Sequential Mediation Model with Final Regression Coefficients

Discussion

The results presented in this study offer valuable insights into the relationships among key variables. The Principal Component Analysis (PCA) with Varimax

rotation and Kaiser normalisation identified four distinct factors. Each factor represents a unique dimension within the dataset. Factor loadings for each variable under these factors demonstrated strong associations. This entire procedure emphasised the unified nature of the identified

dimensions. Descriptive statistics showcased the nature of the variables, indicating a positive trend. Furthermore, confirmatory factor analysis confirmed the observed variables' factor structures, with significant factor loading values above 0.5 for each factor. Discriminant validity was established, and process macro mediation results revealed a sequential mediation model. The mediation results stated that financial indicators (FI) and sustainable behaviour indicators (SBI) partially mediate the relationship between DB and GBI. The hypotheses were supported as per the research findings.

The main aim of this study was to investigate the relationship between digital banking and green behavioural intentions of gig workers and the mediating role of financial inclusion and sustainable banking initiatives in this association. A sequential mediation model, based on sustainability literature, is proposed to test the hypotheses. This study is one of the first to examine how digital banking impacts the green behaviour of gig workers, which is a less-explored area compared to the impact on customers. It is important to explore the linkage between digital banking and green behaviour because digital banking is frequently utilised as a symbol of technology adoption, while green behaviour significantly influences customers' intention to green practices. (Kaur *et al.*, 2021; Meher *et al.*, 2021). This study's findings are in line with the results of Hendriyani & Raharja (2018), who suggested that digital banking has a positive impact on sustainability. It allows financial institutions to serve a broader range of customers while reducing their carbon footprint. Also, Hendriyani & Raharja (2018) stated that digital banking is more cost-effective compared to traditional banking. Hence it makes it a good choice for both banks and customers. Furthermore, Hendriyani & Raharja, (2018) found that digital banking promotes financial inclusion. It allows low-income households to access financial services and contribute to sustainable development.

Currently, the banking industry has transformed with many technological advancements. Technology has created new opportunities for gig workers, allowing them access to various financial services (Krishna, 2021; Sakanko *et al.*, 2020). On the other hand, sustainable banking and eco-friendly practices have become increasingly important among gig workers. A study conducted by Kaur *et al.*, (2021) found that digital banking has a positive impact on customers' environmentally friendly behaviour. The relationship between digital banking, financial inclusion, sustainable banking initiatives and the green behavioural intentions of gig workers seems complex. Also, in earlier studies it has not been examined (Friedland & Balkin, 2023; Kling *et al.*, 2020; Schor & Attwood-Charles, 2017). Digital banking is crucial for financial inclusion. It offers a cost-effective and efficient means of accessing financial services, even as it caters to people who live in remote areas where traditional banking services are still scarce (Krishna, 2021). The present study shows that digital banking has a positive impact on financial inclusion.

Financial inclusion is linked to sustainable banking initiatives which aim to promote sustainability (Kling *et al.*, 2020; Siddik & Kabiraj, 2019). Financial inclusion promotes sustainable bank initiatives as it increases access to financial services. The study further found that financial inclusion has

a positive impact on sustainable bank initiatives. Also, sustainable bank initiatives can impact green behavioural intentions as it promotes environmentally responsible behaviour. These initiatives can encourage gig workers to adopt eco-friendly practices such as reducing energy consumption, recycling, and using environmentally friendly products and services (Behera & Gaur, 2022; Greene, 2020; Mandikonza & Lotz-Sisitka, 2016). The present study found that sustainable banking initiatives have a positive impact on green behavioural intentions. According to Panzone *et al.* (2016), green behaviour has an impact on the adoption of technology and aims to promote product-friendly behaviour. The present study provides evidence that aligns with the viewpoint and social cognition theory. According to Wu *et al.* (2019), the new generation has a stronger preference for green products and services compared to previous generations. This positive association with the consumption of green products can be reinforced through the use of digital banking. The study confirms this trend and highlights the potential role of digital banking in promoting environmentally sustainable behaviour. The study indicates that gig workers who exhibit green behaviour demonstrate their concern for the environment. Nonetheless, Kapferer (2010) argues that an organisations' sustainability focus does not necessarily ensure a green purchase and that it depends on altruism and attraction to green products. However, the present study's findings contradict this argument and suggests that sustainable bank initiatives have a significant impact on promoting green behaviour.

A sequential mediation model was proposed to analyse the relationships. As per the present study, digital banking was found to have a positive impact on financial inclusion. Also, it further promotes sustainable bank initiatives and green behavioural intentions. The research emphasised the importance of digital banking in advancements of sustainable banking and green behaviour. The study's findings have important implications for policymakers, banking organisations and gig workers to assist in shaping policies and programmes intended to foster sustainable banking and green behaviour.

Theoretical Implication

This research is based on a sequential mediation model. It examined the relationship mechanism between digital banking and green behavioural intention. The study's findings evidence that digital banking has a positive influence on sustainable bank initiatives. The results of the study have theoretical implications. It stated that digital banking has the potential to be an effective tool for financial inclusion. It can support sustainable bank initiatives and can encourage green behaviours. The findings are consistent with Guerra-Leal *et al.* (2022) and Kaur *et al.*, (2021) who stated that digital banking enables financial institutions to reach a wider customer base while it can also reduce the environmental impact. The study supported the positive influence of financial inclusion on green practices and sustainable bank practices. Financial inclusion is a tool to promote sustainable bank initiatives since it increases access to financial services and promotes responsible financial behaviour. The study's findings support the notion that financial inclusion is crucial for promotion of economic

development and reduction in inequality. Gig workers can be encouraged to adopt green practices via sustainable bank programmes. The findings of this study are consistent with prior research which shows that sustainable banking practices have a big impact on encouraging green behaviour (Kaur *et al.*, 2021). The research adds to the social cognition theory of sustainable consumption as it explores the link between gig workers and their green behaviour. It suggests that green behaviour and explicit attitudes influence the adoption of technology that is aimed toward promotion of ecologically friendly practices. The study also found that gig workers who act sustainably demonstrate their concern for the environment regarding businesses. Moreover, the research concludes that the current generation who are involved in gig work have a greater preference for green products and services compared to previous generations. This favourable association between the use of digital banking and the purchase of green products can be further reinforced. The study's results provide direction to financial institutions and policymakers in order to encourage them to support gig workers. It highlights the positive effects of digital banking on programmes promoting sustainable banking, financial inclusion, and green behaviour.

Practical Implication

The study's results also have important implications for researchers, academicians and policymakers. These stakeholders might be interested in promoting sustainable finance and green behaviour among gig workers. The theoretical model can be used by policymakers to design programmes and policies that promote the use of digital banking specifically for gig-workers. Policymakers would be able to establish financial inclusion programmes that encourage gig workers in this regard, to use digital banking services. The study outcomes can help stakeholders to promote sustainable bank activities. Furthermore, it can encourage gig workers to adopt green behaviour. The study's findings show an opportunity for financial institutions to devise such strategies that can encourage gig workers to adopt digital banking services. However, financial organisations have the option to provide incentives such as waived fees or lower interest rates on loans. Such measures can definitely serve as a motivating factor for those who embrace digital banking services and promote sustainable bank practices.

The study also has important implications for other stakeholders interested in promoting sustainable financial initiatives and green practices. The findings of this research can be used by stakeholders to make informed judgments regarding financial behaviour. For instance, gig workers can choose to practice digital banking services to support ethical bank practices and promote green behaviour. Additionally, they have the option to utilise green products and services that are supported by sustainable bank programmes. Furthermore, businesses can use the findings of this research to develop initiatives aimed at encouraging sustainable banking practices among their clientele. Businesses can collaborate with financial institutions that support sustainable banking efforts, providing incentives to clients who use sustainable banking methods, for example. This might improve their corporate social responsibility and encourage environmentally friendly behaviour among their clients.

The findings of this study hold significant policy implications for various stakeholders such as financial institutions, policymakers and environmental agencies. Policymakers can consider adoption of digital banking solutions to amplify the positive impact on green initiatives. Financial institutions could develop and implement policies that encourage users to engage with digital banking platforms. It can emphasise the environmental benefits tied to a reduced carbon footprint and resource conservation. Moreover, the study emphasises the importance of integrated sustainable practices within financial services. It guides policymakers to enact regulations that incentivise financial institutions to incorporate green innovation into their core operations. This could involve various tax benefits or other financial incentives for institutions that demonstrate a commitment to sustainability. Furthermore, financial literacy programmes could integrate modules that emphasise the importance of incorporation of eco-friendly choices into everyday financial decisions. Such initiatives can contribute to a broader societal shift towards sustainability as it can empower individuals to make environmentally conscious choices in their financial activities. Policymakers should consider comprehensive frameworks to address the interconnectedness of these factors within the digital banking landscape. This can involve collaboration with financial institutions and technology providers to establish industry standards for sustainability.

Conclusions

This study analysed the relationship between digital banking and green behavioural intentions of gig workers. Also, the role of financial inclusion and sustainable banking initiatives have been analysed as mediators in this relationship. The study proposed a sequential mediation model to test the hypotheses. The results indicate that digital banking has a positive impact on financial inclusion. Financial inclusion affects sustainable banking initiatives and finally, impacts green behavioural intentions. The study found a positive association between DB and GBI. Results show that the link between DB and GBI is mediated by FI and SBI. It provides clarity in terms of how digital banking platforms can be leveraged to drive sustainable practices. The findings suggest that digital banking can be a powerful tool in promoting sustainable banking initiatives and green behavioural intentions among gig workers, particularly in developing countries.

This study has some limitations, such as: the research exclusively examines gig workers, which restricts how broadly the results may be applied to other sorts of employees. Secondly, the study's cross-sectional design makes it difficult to prove a connection between green behavioural goals, financial inclusion, and sustainable banking activities and digital banking. By using longitudinal designs, various sources of data and a wider variety of people, future researchers can overcome these constraints. Furthermore, future researchers can consider the role of blockchain and artificial intelligence in the context of green finance and digital banking. This forward-looking approach will not only advance the current area of research but also guide practitioners, policymakers and academics regarding a more sustainable and environmentally conscious future for the digital banking landscape.

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The article has been reviewed.

Received in July 2023; accepted in March 2024.



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