

# ISTANBUL CONFERENCE ON ECONOMICS AND SOCIETY (ISTCES) 2025

*Pathways to Inclusive Growth: Overcoming Challenges in  
Emerging and Developing African Countries.*

24-26 SEPTEMBER 2025

*Book of Proceedings*

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## 7.

# Assessing the Impacts of Digital Impacts of Digital Finance Services on Financial Inclusion in the Americas

Usman Ali<sup>1</sup>

This research aims to examine the diverse effects that Digital Financial Services (DFS) exerts on promoting Financial Inclusion (FI) in the Americas. Indeed, we fill the gaps explored from the literature, such as a lack of studies for both American regions, the use of classical probit and logit models by most existing studies, and the lack of employing interaction terms. This research's primary objectives are to determine how DFS impacts FI in the region, examine which socio-economic factors significantly influence FI, and explore the interactive impacts of DFS with socio-demographic attributes on FI. This research extracted its dataset from the Global Findex database 2021, and it employs classical Probit and Logit models alongside supervised machine learning models to enhance robustness and prediction accuracy. The finding shows the statistical significance of age, female, education, employment, mobile ownership, internet access, any digital payment, and the richest income quintile coefficients of marginal effects of the probit and logit models. In contrast, the second to fourth income quintiles and the interaction term are not statistically significant. Nonetheless, there is an exception to the interactive variables, where female and digital payments have a negative coefficient in our probit model. The contributions of this study added to the established body of literature, theoretical enrichment of FI models like TAM, as confirmed by the influence of the anydigpayment attribute in enhancing FI. Novelty in methodology, where we integrated random forest (RF) and XGBoost (XGB)

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models with classical regressions, because RF and XGB provide more accurate predictions by uncovering non-linear dynamics and interactions among variables. With the help of SHAP value, we demonstrated how ML outperforms classical models by ranking the most critical features and their directional effect on FI using a bar chart and a beeswarm plot, respectively.