International Conference on Rural Development and Entrepreneurship (ICORE 2026)
Proceedings
Vol. 08 Year 2026, 1137 – 1156

BEYOND BARRIERS: POWER DISTANCE CULTURE AND FARMERS' RESISTANCE TO DIGITAL PAYMENT SYSTEMS—A MULTIGROUP ANALYSIS

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Abstract

Digital payment systems is a key driver of the rapidly developing digital economy. However, its adoption among farmers remains limited, indicating persistent resistance to such innovations. This study examines farmers' resistance to digital payment systems by integrating Innovation Resistance Theory (IRT) with the cultural dimension of Power Distance. It further investigates whether the effects of innovation resistance barriers differ across cultural groups. Data were collected from 316 Indonesian farmers and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) and Multigroup Analysis. The results show that value and image barriers significantly influence resistance in both high and low power distance groups, while tradition barriers are significant only in the high power distance group. In contrast, usage and risk barriers do not exhibit significant effects in either group. Multigroup analysis further indicates that power distance only differentiates the effect of tradition barriers on resistance behavior. These findings suggest that cultural context selectively shapes psychologically embedded resistance, particularly those related to tradition. The study contributes to the literature by demonstrating that farmers resistance to adopt digital payment system is dependent on cultural context, while it offers practical implication by highlighting the importance of culturally informed strategies in promoting digital payment adoption among farmers.

Keywords: innovation resistance, digital payment, power distance, farmers, multigroup analysis

INTRODUCTION

In recent years, the world is experiencing a dramatic shift in the global economy where conventional economic practices being rapidly replaced by digital operations (Olesia, 2024). UNCTAD (2021) argued that this economic transformation is characterized by the extensive use of digital platforms in business, trade, and transaction that make the economic cycle to be faster, wider, and more massive in scale. The rapid advancement of digital technologies have accelerated the progress of digital economy across multiple sector to include a traditional sector like agriculture (Junarsin et al., 2021). This industrial revolution 5.0 highlights the integration of human-centered innovation with digital intelligence, fostering a more inclusive and interconnected economic system. The emergence of digital platforms like e-commerce, internet of things (IoT), and digital payment system have facilitated the improvement in overall productivity, efficiency, and wellbeing of the society, including the marginalized population like farmers and small and medium enterprise owners (Musyaffi et al., 2024).

Within the evolving ecosystem of digital economy, digital payment systems have emerged as a critical enabler and catalyst of the new economic system (Khando et al., 2023). Studies have found that the adoption of digital payment can improve the performance of supply chain (Kilay et al., 2022), boost international trade (Sawadogo & Wandaogo, 2021) and increase rural wellbeing (Dzogbenuku et al., 2022). The ability of digital payment to facilitate fast, secure, and cashless transactions have reduced transaction costs and increased efficiency across markets. This

technology has reshaped business models by enabling seamless integration between financial services and digital platforms like e-commerce (McKinsey&Company, 2018). Moreover, digital payment system also transformed the economy by encouraging consumers to be more consumptive that contribute to increase the aggregate demand and overall growth of the economy (Rooj & Sengupta, 2020). Therefore, Lee & Shin (2018) argued that digital payment systems has been a game changer in modern financial transactions that support financial inclusion and enhance economic participation on a global scale.

APEC (2017) suggested that digital payment system is also beneficial to improve the productivity and efficiency of the agricultural sector. Digital payment system provides advantages to farmers like improved access to financial services, enhanced transparency in transactions, and reduced reliance on cash-based systems that are often inefficient and vulnerable to risk (Babcock, 2015). Moreover, digital payment system can also facilitate smoother supply chain operations (Kilay et al., 2022), enable better price discovery (Assimakopoulos et al., 2025), and strengthen linkages between farmers and markets (ERIA, 2024). Unfortunately, despite these potential benefits, the adoption of digital payment systems among farmers remains relatively low compared to urban populations (Parlasca et al., 2022), indicating persistent barriers of adoption and existing gap between technological potential and actual utilization of the technology in rural contexts.

One of the primary factors contributing to this disparity is the digital divide that continues to characterize rural areas (Ariansyah et al., 2019). Wilantika et al. (2018) explained that digital divide refers to the gap of digital access and literacy between different regions, particularly the urban and rural regions. People in the rural area tend to have limited access to digital infrastructure, lower levels of digital literacy, and restricted exposure to technological innovations (Wardhana & Fauzy, 2024) that hinder farmers' willingness and ability to adopt digital payment systems. However, given the aggressive improvement in internet penetration in developing countries like Indonesia (Data Reportal, 2023), more farmers have been able to access digital technologies (ITA, 2023), yet, the use of digital payment for agricultural transaction is still relatively low in the country (Jamilatuzzahro & Alaudin, 2024). This indicates that beyond structural constraints, the differences in perceptions, attitudes, and readiness toward technological change also act as barriers of adoption among Indonesian farmers. Traditionally, barriers of technological adoption have been measured using the framework of Innovation Resistance Theory (IRT) who argued that people resistance toward adopting new technologies are determined by usage barriers, value barriers, risk barriers, tradition barriers, and image barriers (Talwar et al., 2023). Many studies have consistently found these five barriers as the main contributor of people resistance toward digital payment adoption across different context as indicated in studies by Uddin et al. (2024), Ashrafi & Easmin (2023), Behera et al. (2022), Cham et al. (2021), Ghosh (2022), and Kaur et al. (2020). All these studies confirm the strength of IRT in explaining the resistance behavior toward digital payment system.

As an agrarian country with almost 30% of its workforce are working in the agricultural sector (World Bank, 2022), Indonesia is in a great need to encourage a wider digital payment adoption among farmers as it would contribute to increase the agricultural productivity and efficiency that would eventually reduce rural poverty. Within the context of agricultural society, barriers of technology adoption are not only related to structural and cognitive barriers, but also shaped by cultural factors (Szlanyinka, 2009). Rural communities tend to exhibit stronger adherence to cultural values and social norms, which influence decision-making processes and behavioral patterns (Jamalova, 2024). Previous research have tried to identify the cultural role on digital payment adoption as indicated in the work of Migliore et al. (2022), Khan (2022), and Laukkanen (2015). Those studies measured the cultural role on digital payment adoption by employing the Hofstede Cultural Dimensions (HCD). Among these cultural dimensions is power distance, that is defined as the extent to which individuals accept hierarchical order and unequal power distribution in their community (Rinne et al., 2012). In high power distance contexts, individuals are more likely to rely

on authority figures and established social structures, which may affect how they perceive and respond to new technologies such as digital payment systems.

The latest report on Hofstede national culture, Indonesia is categorized as a country with strong power distance culture (The Culture Factor Group, 2023). However, Indonesia is actually a multicultural country where each region has different level of power distance culture. A study by Setyaningrum et al., (2022) provided description on the variations of Indonesian cultural dimensions in different regions. As proven in a study by Migliore et al. (2022), The effect of IRT constructs on people's resistance are significantly moderated by power distance culture. Therefore, in order to comprehensively understand the dynamic of farmers resistance toward digital payment system across different culture in Indonesia, the cultural dimension of power distance is used as moderating variable in this research. Power distance culture may shape how farmers evaluate the risks, benefits, and compatibility of digital payment systems (Darmawati et al., 2019). It may also affect their reliance on external guidance, such as government policies or community leaders, in making adoption decisions. Therefore, understanding how the cultural dimension of power distance underpinning the innovation resistance is essential for developing a more comprehensive explanation of technology adoption behavior in rural environments.

Despite the growing body of literature on digital payment adoption, most studies have predominantly focused on technological, economic, and individual-level factors, often overlooking the role of cultural dimensions (Sahi et al., 2021). While existing research acknowledges barriers such as perceived risk, complexity, and lack of value, limited attention has been given to how these barriers may operate differently across cultural contexts. In particular, the integration of cultural perspectives, such as power distance, into the analysis of innovation resistance remains underexplored, creating a significant gap in the literature. Moreover, many of previous research have measured moderating effects of culture using ordinary SEM-PLS method, while a more accurate result could be achieved using a multigroup analysis (Cheah et al., 2020). This research is among a few studies that utilize the multigroup analysis as a basis of understanding the cultural role in digital payment adoption context.

LITERATURE REVIEW AND HYPOTHESIS FORMULATION

Innovation Resistance Theory

Studies on digital payment adoption have been widely examined in the context of technology acceptance that aimed to identify factors determining the adoption of the technology (Patil et al., 2017; Susanto et al., 2022). However, increasing attention has been currently directed toward understanding why individuals resist to use the financial technological innovation. In this regard, Innovation Resistance Theory (IRT) has gained popularity among scholars as it provides a robust and strong framework for explaining resistance behavior by emphasizing the barriers that hinder adoption rather than the drivers that facilitate it (Klyton et al., 2021; Leong et al., 2021). Unlike traditional acceptance models like TAM or UTAUT, this perspective recognizes that resistance is a natural and often dominant response to innovation, particularly when the innovation challenges existing routines, beliefs, or value systems.

The IRT categorizes barriers of technological adoption into two broad dimensions, that are the functional barriers and psychological barriers (Huang et al., 2021). Talwar et al. (2023) explained that functional barriers relate to the practical and economic aspects that hinder people from adopting an innovation, that include usage, value, and risk barriers. Usage barriers arise when an innovation is perceived as complex or incompatible with existing practices. Value barriers occur when individuals perceive that the benefits of the innovation do not outweigh its costs. Risk barriers reflect uncertainty and perceived potential losses associated with adoption. On the other hand, psychological barriers are associated with social norms, cultural beliefs, and perceptions about the innovation's symbolic meaning, this includes the tradition and image barriers (Talwar et al., 2023).

Studies have consistently found that those functional and psychological barriers are indeed significant in hindering the adoption of digital payment system in various different context like Indian consumers (Behera et al., 2022; Manimay Ghosh, 2022; Sivathanu, 2017), Malaysian elderly population (Cham et al., 2021), bottom of pyramid users in Indonesia (Firman et al., 2024), travelers (Hameed et al., 2024), and whatsapp users (Uddin et al., 2024). However, no studies have been conducted to examine the resistance of adopting digital payment system within the agricultural setting despite the eminent possibility of those barriers to also influence the resistance behavior of the agricultural community. Similar to those various population context in literatures, farmers may also resist using digital payment systems due to consideration related to usage barriers, value barriers, risk barriers, tradition barriers, and image barriers. In fact, farmers resistance due to functional barriers like usage, value, and risk barriers may be stronger than the urban population as they have many practical challenges in using the technology such as lack of knowledge, low internet access, and less digital literacy as indicated in studies by Ong et al. (2023) and Malaquias & Silva (2020). Therefore, we propose the following hypothesis:

H1a: Usage barrier positively influences farmers' resistance to digital payment systems.
H1b: Value barrier positively influences farmers' resistance to digital payment systems.
H1c: Risk barrier positively influences farmers' resistance to digital payment systems.

Furthermore, rural population like farmers have a stronger attachment to tradition and social norms that make them reluctant to use certain technology if they perceived the technology to be incompatible with their traditional practices (Ong et al., 2023). This argument is also supported by the research finding of Chittineni (2018) that underscore the important role of tradition and image barriers to the resistance behavior of costumers in south India that are considered as a large rural population in the country. A qualitative study by (Klyton et al., 2021) further confirm that the resistance of rural population toward using digital payment system is strongly determined by the psychological barriers like tradition and image barriers. Thus, we also propose the following hypothesis:

H1d: Tradition barrier positively influences farmers' resistance to digital payment systems.
H1e: Image barrier positively influences farmers' resistance to digital payment systems.

Cultural Dimension of Power Distance and Innovation Resistance

Despite the robustness of IRT in explaining the resistance behavior toward technology adoption, it does not explicitly account for the cultural context in which such behavior occurs. Ghosh (2024) argued that individuals respond and behavior to new innovation could be shaped by cultural values, particularly in community-based environments such as the agricultural sector. Unfortunately, in the context of digital payment adoption studies, the role of cultural variables in affecting and shaping digital payment adoption is rarely discussed in literature (Sahi et al., 2021). Culture is a multidimensional concept that make it difficult to find a single measurement model to represent the cultural values. The most commonly used framework to measure cultural values in quantitative studies is the Hofstede cultural dimensions (Zainuddin et al., 2018). Among various cultural dimensions proposed by Hofstede, Power Distance is especially more relevant in the context of Indonesian agricultural population given the variety of farmers power distance level across different region in Indonesia (Darmawati et al., 2019; FX Nadar, 2007; Setyaningrum et al., 2022).

Power distance refers to the extent to which individuals accept unequal distributions of power within a society (Zhao et al., 2021). When society has a high power distance culture, individuals tend to rely more on authority figures, institutional guidance, and established social hierarchies when making decisions. Conversely, in a low power distance culture, individuals are more likely to exhibit autonomy, critical thinking, and independent evaluation of new information (Ma & Turel, 2019). In the context of this study, the differences on power distance culture among Indonesian farmers group could have important implications on how physical and psychological

barriers influencing farmers resistance toward digital payment system. In other words, farmers resistance could be differ due to the differences in the level of their power distance culture.

M***ultigroup Analysis of Power Distance***

As the theoretical relevance of power distance has been ensured, it is important to examine how its influence manifests in shaping the relationship between innovation resistance barriers and resistance behavior. Rather than treating power distance as a simple predictor, this study conceptualizes it as a contextual factor that conditions the strength of these relationships. To capture this heterogeneity, Multigroup Analysis (MGA) is employed to compare structural relationships across groups with different levels of power distance. Multigroup analysis enables the identification of differences in path coefficients between groups (Cheah et al., 2023), providing insights into whether and how the effects of innovation resistance barriers vary across cultural contexts.

Khan (2022) and Migliore et al. (2022) have provided evidences in which the cultural dimension of power distance played significant role in shaping the level of influence of both driving and inhibiting factors of digital payment adoption. It has been concluded in those studies that customers with stronger power distance tend to have higher resistance due to the consideration of psychological barriers like tradition and image barriers. Meanwhile, the effect of functional barriers like usage, value, and risk barriers on resistance behavior were found weaker in a higher power distance culture (Migliore et al., 2022). People with high power distance culture respect hierarchical authorities and power inequality within the society. It means that people with high power distance culture would be difficult to act beyond the traditional status quo without recommendation and guidance from figures with formal or informal authority. For example, if an elderly figure recommends the use of digital technology, people with high power distance would not resist the use of the technology even if they have difficulty in using it, or receive little benefits from adopting it. In the context of this study, farmers with high power distance culture would still be willing to adopt digital payment system if it is recommended by the elderly and authority figures, despite the existence of usage, value, and risk barriers. Accordingly, the following hypotheses are proposed:

H2a: The effect of usage barrier on resistance toward digital payment adoption is stronger among farmers with lower level of power distance.

H2b: The effect of value barrier on resistance toward digital payment adoption is stronger among farmers with lower level of power distance.

H2c: The effect of risk barrier on resistance toward digital payment adoption is stronger among farmers with lower level of power distance.

H2d: The effect of tradition barrier on resistance toward digital payment adoption is stronger among farmers with higher level of power distance.

H2e: The effect of image barrier on resistance toward digital payment adoption is stronger among farmers with higher level of power distance.

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Research Framework

Based on the proposed hypotheses, this study posits that farmers resistance to adopt digital payment systems is driven by both functional (usage, value, and risk) barriers and psychological (tradition and image) barriers, while the strength of these influence varies across different levels of power distance among farmers. The research framework of this study is indicated in Figure 1.

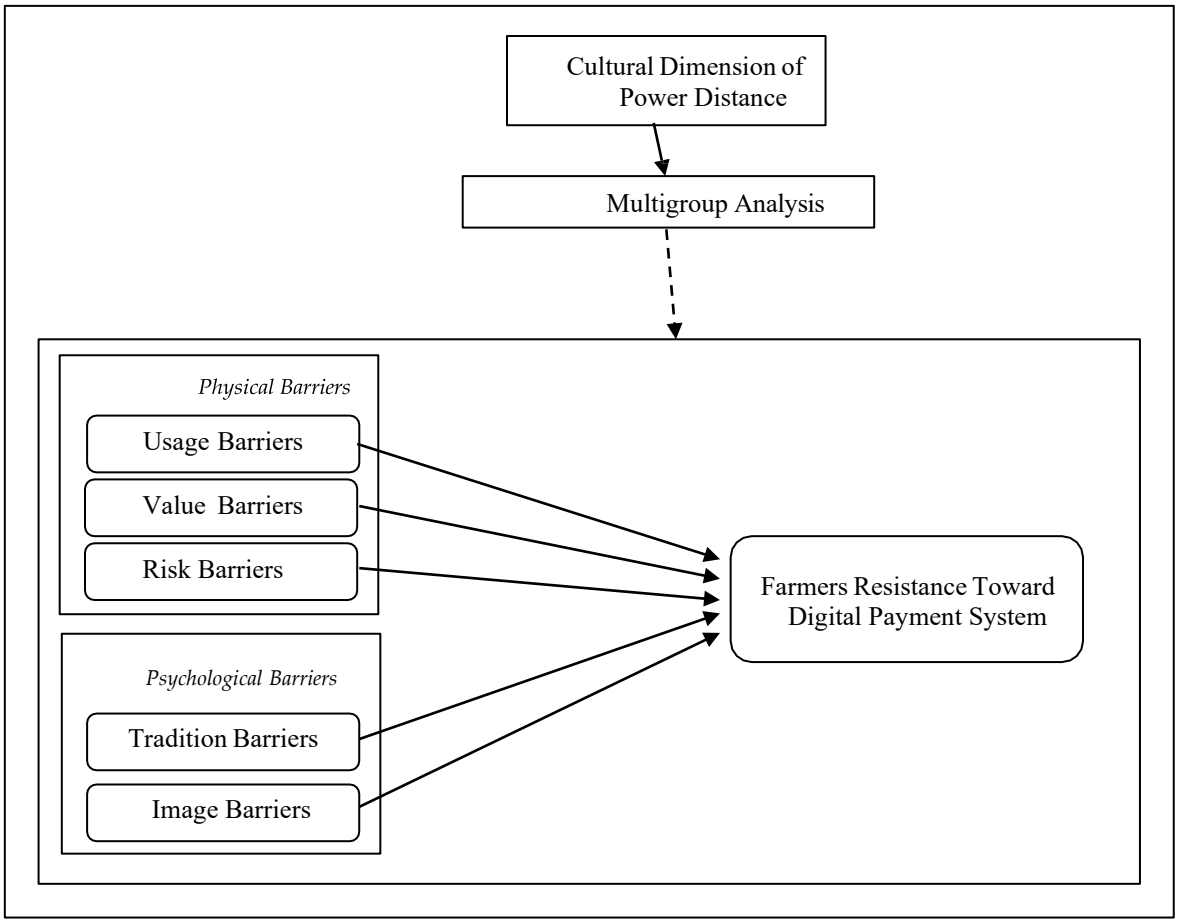


Figure 1. Research Framework

RESEARCH METHODS

This study adopts a quantitative approach using a survey-based research design to examine farmers' resistance to digital payment systems. A structured questionnaire was developed to capture respondents' perceptions of innovation resistance barriers toward digital payment systems. The target population in this study are Indonesian farmers, with a particular focus on plant cultivators who are actively engaged in agricultural production. BPS (2023) suggested that Indonesia has 27.802.434 amount of farmers while no specific data on plant cultivators available. A total of 396 responses were initially collected during the data collection process in this study. Following a rigorous data screening procedure, which involved removing incomplete responses, identifying inconsistent answers, and addressing potential response bias, 316 responses were deemed eligible for further analysis. This final sample size is considered adequate for Partial Least Squares Structural Equation Modeling (PLS-SEM) and multigroup analysis as suggested by Saunders et al. (2019) who argued that a sample size of 300 is statistically adequate for a large population size. This study employed a self-selection (self-registered) sampling method, whereby respondents voluntarily participated in the survey based on their eligibility as farmers.

The data in this research was collected using a hybrid approach that combines online administration with field facilitation. The questionnaire was distributed through an online survey platform called www.allcounted.com, allowing respondents to complete the survey online. To ensure broader coverage, trained enumerators were deployed across different regions in Indonesia. These enumerators were assigned to assist in identifying eligible farmers, provided guidance for farmers in accessing the online questionnaire, and explaining the meaning of statements in the questionnaires that the respondents could not understand. All responses were

directly entered by the respondents themselves through the online system, thereby maintaining consistency in data entry and minimizing potential interviewer bias.

The measurement instrument was developed based on constructs derived from Innovation Resistance Theory, encompassing both functional barriers (usage, value, and risk) and psychological barriers (tradition and image). On the other hand, the cultural dimension of Power Distance was measured at the individual level based on the classification of Indonesian culture by region resulted in a study by Setyaningrum et al., (2022). All measurement items were adapted from established literature and operationalized using a Likert scale to capture the degree of respondents' agreement. Prior to the main data collection, the questionnaire was reviewed by expert panel that consists of 10 experts with proven academic credentials in the research area of management, information system, business, rural development, agricultural economy, and agribusiness. The questionnaire was then refined to ensure the content validity, relevance, and contextual suitability for the target population.

The data analysis was conducted using Multigroup Analysis within the framework of PLS-SEM, implemented through the SmartPLS software. This approach is particularly suitable for analyzing complex relationships between latent constructs and for comparing these relationships across different groups (Cheah et al., 2023; Henseler & Fassot, 2010). The analysis proceeded in two main stages. First, measurement invariance was assessed using the Measurement Invariance of Composite Models (MICOM) procedure to ensure comparability across groups. This involved evaluating the configural invariance (by measuring outer loading, Cronbach alpha, composite reliability, average variance extracted and former-lurcker criterion) for each group, compositional invariance, and the equality of composite means and variances (Cheah et al., 2020). This invariance measurement is a critical prerequisite for conducting valid multigroup comparisons. Secondly, the evaluation of the structural model was conducted using bootstrapping techniques to determine the significance of path coefficients across different group of power distance, followed by conducting the multigroup analysis to examine differences in structural relationships between groups with high and low levels of power distance. This analytical procedure allows for the identification of heterogeneous effects of innovation resistance barriers, thereby providing a more nuanced understanding of farmers' resistance to digital payment systems across different cultural contexts.

RESULTS AND DISCUSSION

Descriptions of Respondents

Table 1. Respondents Description

Measure	Item	Absolute	%
Age Category	< 25 y.o.	84	27%
	>25 – 45 y.0	143	45%
	>45 – 60 y.o	82	26%
	> 60 y.o	7	2%
	Total	**316**	**100%**
Gender	Male	202	64%
	Female	114	36%
	Total	**316**	**100%**
Level of Education	Post Graduate degree	13	4%
	Undergraduate degree	112	35%
	Senior High School	116	38%
	Junior High School	39	12%
	Primary School	33	10%
	Unschooling	3	1%
	Total	**316**	**100%**

Regional Distribution	Java	88	28%
	Sumatra	46	15%
	Nusa Tenggara	140	43%
	Maluku-Papua	5	2%
	Borneo-Sulawesi	37	12%
	Total	**316**	**100%**
Frequentcy of Using Mobile Phone	Everyday	280	89%
	2-3 times a week	24	8%
	Once a week	1	0%
	Rarely	11	3%
	Total	**316**	**100%**
	High	227	72%
	Low	89	28%
	Total	**316**	**100%**

Measurement Invariance of Composite Model (MICOM)

Prior to conducting multigroup analysis, it is necessary to establish measurement invariance to ensure that the constructs are interpreted equivalently across different groups of power distance. As suggested by Cheah et al. (2023), measurement invariance is assessed using the Measurement Invariance of Composite Models (MICOM) procedure within the framework of Multigroup Analysis. The MICOM procedure consists of three sequential stages, that are the configural invariance, compositional invariance, and the assessment of equality of composite means and variances. The configural invariance examines whether the basic model structure is identical across groups. This includes the use of the same indicators, data treatment procedures, and algorithm settings for each group. Configural invariance is measured by evaluating the reliability and validity of the measurement model such as the outer loading, Cronbach alpha, composite reliability, convergent validity, and discriminant validity of the model within each power distance group. Hair et al. (2019) argued that the indicator reliability is confirmed when the outer loading value for each item exceeds a standard value of 0.7. Meanwhile the construct's reliability and internal consistency reliability are achieved when the Cronbach's alpha and composite reliability values are more than 0.7 for each construct for both high and low power distance group. In addition, the Convergent validity is ensured if the value of the average variance extracted (AVE) for each construct exceeds a minimal required value of 0.5 for all groups of power distance. Table 2 shows the results of configural invariance measurement in the model.

Table 2.Configural invariance – the reliability and validity of the model across different level of power distance group

Constructs		Outer Loadings			Cronbach's. Alpha			Composite Reliability			Average Variance Extracted (AVE)		
	items	High PD	Low PD	All groups	High PD	Low PD	All groups	High PD	Low PD	All groups	High PD	Low PD	All groups
Usage Barriers	UB1	0.930	0.922	0.928	0.957	0.957	0.957	0.967	0.967	0.967	0.855	0.854	0.854
	UB2	0.929	0.910	0.924									
	UB3	0.908	0.927	0.912									
	UB4	0.944	0.951	0.945									
	UB5	0.911	0.909	0.911									
Value Barriers	VB1	0.947	0.935	0.944	0.938	0.941	0.939	0.960	0.962	0.961	0.890	0.894	0.891
	VB2	0.945	0.948	0.946									
	VB3	0.938	0.954	0.942									
Risk Barriers	RB1	0.859	0.865	0.860	0.943	0.922	0.938	0.956	0.942	0.953	0.814	0.763	0.801
	RB2	0.895	0.808	0.873									
	RB3	0.905	0.899	0.902									

Tradition Barriers	RB4	0.927	0.916	0.925	0.862	0.901	0.871	0.915	0.937	0.920	0.782	0.832	0.793
	RB5	0.924	0.878	0.914									
	TB1	0.865	0.887	0.870									
	TB2	0.908	0.917	0.910									
	TB3	0.880	0.932	0.892									
Image Barriers	IB1	0.883	0.874	0.881	0.888	0.873	0.885	0.931	0.922	0.929	0.817	0.797	0.813
	IB2	0.921	0.922	0.922									
	IB3	0.907	0.882	0.901									
Resistance Toward Digital Payment	Resist1	0.820	0.719	0.796	0.841	0.810	0.833	0.905	0.890	0.901	0.760	0.732	0.752
	Resist2	0.889	0.906	0.892									
	Resist3	0.904	0.927	0.909									

To further ensured the model validity, a measurement of discriminant validity is conducted using the Fornell–Larcker criterion for each group category. (Hamid et al., 2017) suggested that the use of Fornell-Lurcker criterion is more recommended in PLS-SEM procedure as it can reduce issues related to multicollinearity that often found in the assessment of discriminant validity using other criterion like the heterotrait-monotrait (HTMT). Table 3 shows the discriminant validity of the model in different groups of power distance.

Table 3. Configural invariance – discriminant validity across different group of power distance culture (Forner-Lurcker criterion)

	High Power Distance					
	Image Barriers	**Resistance**	**Risk Barriers**	**Tradition Barriers**	**Usage Barriers**	**Value Barriers**
Image Barriers	0.904					
Resistance	0.774	0.872				
Risk Barriers	0.675	0.621	0.902			
Tradition Barriers	0.737	0.713	0.612	0.884		
Usage Barriers	0.645	0.633	0.620	0.547	0.924	
Value Barriers	0.713	0.719	0.683	0.598	0.821	0.943
	Low Power Distance					
	Image Barriers	**Resistance**	**Risk Barriers**	**Tradition Barriers**	**Usage Barriers**	**Value Barriers**
Image Barriers	0.893					
Resistance	0.769	0.856				
Risk Barriers	0.753	0.655	0.874			
Tradition Barriers	0.661	0.537	0.645	0.912		
Usage Barriers	0.595	0.599	0.742	0.569	0.924	
Value Barriers	0.658	0.659	0.704	0.620	0.873	0.946
	All Groups					
	Image Barriers	**Resistance**	**Risk Barriers**	**Tradition Barriers**	**Usage Barriers**	**Value Barriers**
Image Barriers	0.901					
Resistance	0.771	0.867				
Risk Barriers	0.692	0.627	0.895			
Tradition Barriers	0.720	0.672	0.620	0.891		
Usage Barriers	0.632	0.623	0.646	0.550	0.924	
Value Barriers	0.698	0.703	0.687	0.604	0.832	0.944

The configural invariance is confirmed when all of those indicators are met across different power distance group, ensuring that the constructs are measured consistently across different groups. Based on the data showed in Table 1 and Table 2, all constructs in different groups of power distance have met the standard criteria of reliability and validity as suggested by Hair et al. (2020). This confirms that the configural invariance is achieved in the model of this study.

The second stage of MICOM is measuring the compositional invariance that assess whether the composite scores of the constructs are equivalent across groups. This is typically evaluated using permutation testing, where the correlation between composite scores across groups is examined. Cheah et al. (2020) suggested that the compositional invariance is achieved when the correlation value is not significant (p value > 0.005), implying that the constructs are formed in a comparable manner across groups. Furthermore, the third stage in MICOM is conducted by measuring the equality of composite means and variances across groups. This step determines whether there are significant differences in the central tendency and dispersion of the constructs between high and low power distance groups. The composite equality of the constructs in the measurement model is achieved when the original difference value of each construct is situated between the values of permutated 2.5% and 97.5% of the mean and variance measurement (Cheah et al., 2023). The summary of the invariance measurement result can be seen in Table 4.

Table 4. Summary of the invariance measurement results

		Compositional Invariance			Composite Equality Distribution of Mean and Variance Values						
Construct	**Configural Invariance**	**Original Correlation**	**P-Value**	**Status**	**Mean Ori Dif**	**Mean 2.5%**	**Mean 97.5%**	**Variance Original Dif**	**Var 2.5%**	**Var 97.5%**	**Invariance Summary**
Usage Barriers	confirmed	1.000	0.538	OK	0.071	-0.231	0.230	0.191	-0.266	0.301	Full Invariance
Value Barriers	confirmed	1.000	0.319	OK	-0.052	-0.258	0.232	0.205	-0.252	0.283	Full Invariance
Risk Barriers	confirmed	1.000	0.736	OK	-0.081	-0.257	0.239	0.325	-0.299	0.307	Partial Invariance
Tradition Barriers	confirmed	0.999	0.393	OK	-0.095	-0.271	0.234	0.233	-0.299	0.321	Full Invariance
Image Barriers	confirmed	1.000	0.507	OK	-0.040	-0.245	0.231	0.308	-0.308	0.305	Partial Invariance
Resistance	confirmed	1.000	0.608	OK	0.001	-0.244	0.256	0.449	-0.301	0.349	Partial Invariance

When both compositional invariance and equality of means and variances are satisfied, full measurement invariance is established. If only one of the invariance measurement was fulfilled, the construct is considered to have achieve a partial invariance. Nevertheless, Cheah et al. (2023) underscored that even if only partial invariance is achieved, multigroup analysis can still be conducted and the result can be confidently trusted.

Structural and Multigroup Analysis

Following the establishment of measurement invariance, the analysis proceeds to the evaluation of the structural model. This stage aims to examine the hypothesized relationships between innovation resistance barriers and farmers' resistance to digital payment systems, as well as to identify potential differences across groups with varying levels of power distance. The structural analysis is conducted using bootstrapping procedures within the PLS-SEM framework to

assess the significance and strength of the path coefficients (J. Hair et al., 2017). In this study, the bootstrapping results are estimated and reported separately for each group (high and low power distance), allowing for a more detailed examination of the relationships within each cultural context. Table 5 shows the bootstrapping results for different group of power distance.

Table 5. Bootstrapping results for different group of power distance

Path Relationship	Original Sample		Mean Sample		t-value		p value		Hypothesis Accepted?
	High PD	Low PD	High PD	Low PD	High PD	Low PD	High PD	Low PD	
UB -> Resistance	0.019	0.034	0.025	0.039	0.260	0.223	0.795	0.823	No
VB -> Resistance	0.281	0.243	0.282	0.239	3.262	1.709	0.001	0.087	Yes
RB -> Resistance	0.017	0.049	0.011	0.028	0.212	0.318	0.832	0.751	No
TB -> Resistance	0.261	-0.049	0.255	-0.045	3.851	0.427	0.000	0.669	Partially
IB -> Resistance	0.359	0.582	0.364	0.601	3.929	3.556	0.000	0.000	Yes

Table 5 indicates that only the effect of value barriers and image barriers were found significant in influencing farmers resistance toward digital payment system across different level of power distance. Meanwhile, the usage barriers and risk barriers did not have significant effect on farmers resistance behavior to adopt digital payment systems in any group of power distance measured in this study. Interestingly, the effect of tradition barriers on farmers resistance to adopt digital payment system was found significant among a high power distance farmers while it is not significant in a group of farmers with low power distance culture.

Subsequently, Multigroup Analysis is performed to formally compare the structural relationships between the two groups. While the bootstrapping results provide insights into the significance and direction of effects within each group, the multigroup analysis determines whether these effects differ significantly across groups. Table 6 provides information on the multigroup analysis result of the research model.

Table 6. Multigroup analysis result

	Original Difference	P value	Hypothesis Accepted?
UB -> Resistance	-0.016	0.916	No
VB -> Resistance	0.038	0.819	No
RB -> Resistance	-0.032	0.837	No
TB -> Resistance	0.309	0.018	Yes
IB -> Resistance	-0.223	0.211	No

Table 6 implies that the cultural dimension of power distance only have a moderating effect on the relationship between tradition barriers and farmers resistance to adopt digital payment system. The original difference value of 0.309 in the MGA result of tradition barriers influence on the resistance behavior of farmers indicate that farmers with higher level of power distance have a stronger resistance to adopt digital payment system due to tradition barriers. Conversely, the effect of tradition barriers on farmers resistance to adopt digital payment is weaker in a lower power distance culture. Thus, Hypothesis 2d (H2d) in the model is supported while the other second hypothesis (H2a, H2b, H2c, and H2e) are rejected.

Discussions

Unlike a research result found by Firman et al. (2024) that confirm the significant effects of all IRT constructs on customers negative intention of adopting digital payment system, this study has only identified value barriers and image barriers as significant antecedents of farmers resistance to adopt digital payment system in both high and low power distance culture in Indonesian agricultural society. Moreover, tradition barriers were found significant in affecting farmers resistance only in a high power distance culture while the value barriers and risk barriers were found insignificant in both groups. The inconsistency of this research finding with those found by Firman et al. (2024) explained the unique characteristic of Indonesian farmers who are more concern about psychological barriers like image and tradition rather than the functional barriers, especially value and risk barriers. This means that farmers in Indonesia do not care if the digital payment technology offers no real benefits for them, they will not resist using the technology even if it is perceived to be not beneficial and risky. However, farmers would resist to use the technology if it contradicts traditional norms and it has a bad reputation in the society. This result could be justified using the work of Agárdi & Alt (2022) who found that native population tend to have more aggressive behavior toward using new technology if it is perceived to be compatible with their local existing values, while immigrant users were only react to functional factors of adoption like ease of use and financial risk. In the context of this study, farmers are the native population who have a stronger ties with local norms and traditional values.

Furthermore, the results of the multigroup analysis in this study have confirmed the moderating effect of the cultural dimension of power distance, especially on the effect of tradition barriers on farmers' resistance to adopt digital payment systems. This means that the effect of tradition barriers on farmers resistance to adopt digital payment system differs significantly across different level of farmers power distance. This finding demonstrates that the influence of tradition barriers is significantly stronger among farmers with higher levels of Power Distance, whereas this effect is comparatively weaker among those with lower levels of power distance. This result is consistent with the findings of Migliore et al. (2022) who confirm the stronger effect of tradition on resistance behavior within a stronger power distance culture like China compared to a low power distance culture like Italy.

The cultural dimension of power distance reflects individuals acceptance toward power disparity and hierarchical authority within their society (Rinne et al., 2012). Therefore, individuals that are belongs to a strong power distance culture tend to have greater respect toward community leaders, government authorities, and informal elderly figures. Moreover, people with high power distance culture are considered to be more attached to tradition and obliged to maintain status quo of daily practices (Ma & Turel, 2019). These argument can be used to explain why tradition barriers are significantly affect farmers resistance toward using digital payment system in a high power distance culture, while it is considered not important for farmers with low power distance culture as resulted in this study. As suggested by Azam & Quaddus (2013) who revealed that in a strong power distance culture, people are usually late in adopting new technology as they seek validation and guidance from their respected local leaders and elderly figures.

The significant moderating role of power distance on tradition barriers can also be explained through the lens of Innovation Difussion Theory (IDT), which argues that adoption of new innovation is strongly influenced by the compatibility of an innovation with existing values and practices (Munoz-Leiva et al., 2019). When a new innovation is perceived to be incompatible with local norms and social values, the diffusion of the innovation within the society could be limited due to people resistance to adopt it. In the context of high power distance culture, individuals tend to exhibit greater adherence to established norms, hierarchical structures, and socially sanctioned behaviors that make them reluctant to use technology that they perceived to be incompatible with their traditional routines (Shareef et al., 2016). Within agricultural communities, such cultural orientation reinforces the persistence of traditional transaction practices, such as cash-based exchanges, which are often perceived as more familiar, trustworthy, and socially validated.

Consequently, when digital payment systems are introduced, they are more likely to be perceived as disruptive to entrenched practices, thereby intensifying resistance among farmers operating within high power distance contexts.

In contrast, this study also found that no significant group differences were observed for the effects of usage, value, risk, and image barriers. These findings suggest that cultural context only has an impact on the psychological barriers, while functional barriers remain relatively stable across groups. This result diverges from some prior research that has argued for a broader cultural influence on perceived risk and complexity. Migliore et al. (2022) and Lok (2015) found that the cultural dimension of power distance shaped the effect of usage barriers, value barriers and risk barriers on consumer resistance to adopt digital payment system. A relatively similar result also found in the study of Khan (2022) that underscore the role of power distance culture on shaping the effect of perceived usefulness on customers intention to adopt digital payment system. This trend was also found in different context of technology adoption like m-government technology (Shareef et al., 2016), e-learning innovation (Zhao et al., 2021), and national cybersecurity technology (Krishna et al., 2023).

The non-significant moderating effect of power distance on the relationship between usage, value, and risk barriers in this study's finding can be explained by the characteristics of those functional barriers which are primarily grounded in objective or quasi-objective conditions, such as technological infrastructure, financial constraints, and digital literacy, which tend to be experienced similarly across cultural groups. For farmers, even if they have different level of power distance, they have experienced a relatively similar condition of the functional barriers such as the relative limitations in access to reliable internet, concerns over transaction costs, and uncertainty regarding system usability (Kumar et al., 2023). This similarity of experiences across farmers with different group of power distance culture may explain the absence of cultural distinctions in the relationship between usage, value, and risk barriers with the resistance of farmers to adopt digital payment system. As such, the effects of these barriers on resistance behavior remain consistent regardless of power distance orientation.

While earlier studies have predominantly focused on assessing direct effects of resistance barriers as indicated in studies by Firman et al. (2024), Sultan et al. (2024), Uddin et al. (2024), Ashrafi & Easmin (2023), Behera et al. (2022), Kaur et al. (2020), and many others, this research highlight the importance of contextualizing these effects within a cultural framework. The results of this research suggest that farmers resistance behavior in adopting digital payment system is more sensitive toward cultural conditioning in psychological barriers, particularly those associated with tradition than functional barriers like usage, value, and risk barriers. This study advances the understanding of innovation resistance as a heterogeneous phenomenon, shaped not only by individual perceptions but also by broader socio-cultural structures.

This study's finding offers a practical consequences in which the efforts to promote digital payment adoption among Indonesian farmers with high power distance culture, promotors should consider leveraging existing social hierarchies and community structures. Promoting the use of digital payment system for agricultural transaction by involving local leaders, cooperatives, or agricultural extension agents may enhance legitimacy and reduce resistance associated with traditional practices. Additionally, positioning digital payments as complementary to, rather than disruptive of, existing practices may facilitate smoother adoption. Conversely, in lower power distance settings, where individuals are more inclined toward independent decision-making, strategies that emphasize usability, efficiency, and economic benefits may be more effective.

CONCLUSION

This study was designed to examine farmers' resistance behavior to adopt digital payment systems by integrating Innovation Resistance Theory with the cultural dimension of Power Distance and applying Multigroup Analysis. The results of this study confirm that both functional (especially

value barriers) and psychological barriers (tradition and image barriers) have affected farmers resistance toward adopting digital payment system for agricultural transaction. Furthermore, the multigroup analysis reveals that the cultural dimension of power distance plays a selective rather than universal role in shaping these relationships. The statistical result found that power distance only moderates the relationship between tradition barriers and farmers resistance behavior, indicating that cultural values primarily condition the influence of psychologically embedded factors rather than functionally driven considerations. This means that farmers with high power distance culture exhibit stronger resistance when digital payment systems are perceived as incompatible with established traditions, whereas this effect is less pronounced among farmers with lower level of power distance culture.

These findings have contributed to enrich knowledge in the issue of digital payment adoption. This study extends the application of Innovation Resistance Theory by incorporating cultural dimension of power distance as a moderating variable, thereby moving beyond the predominantly individualistic and technology-centric perspectives that dominate prior research (Sahi et al., 2021). In addition, the study also demonstrates that resistance behavior is not homogeneous across populations, but rather shaped by underlying socio-cultural structures. The use of multigroup analysis to investigate the phenomena also make this study unique in literatures as most prior studies used a regular PLS-SEM approach to examine moderating variable that is often bias and less accurate due to the absence of invariance measurement in their procedure (Cheah et al., 2020).

Apart from its theoretical contribution, this study also offer a significant practical implication. The results underscore the importance of designing culturally informed strategies to promote digital payment adoption among farmers. In the agricultural society with high power distance environments, policy interventions should leverage existing social hierarchies and institutional trust by involving local leaders, agricultural extension agents, and community authorities in the diffusion process. Such actors can serve as legitimizing agents, reducing perceived incompatibility between digital payment systems and traditional practices. on the contrary, for farmers with lower power distance orientations, strategies that emphasize usability, efficiency, and economic benefits are likely to be more effective, as decision-making in these social contexts is more individually driven.

Despite its important contributions, this study acknowledges some limitations that should be considered in conducting future research. First of all, the use of self-registered sampling method may create bias due to the difficulty to verify the trustworthiness of the responses. Moreover, the cross-sectional design of this study limits the ability to capture dynamic changes in resistance behavior over time. Furthermore, while power distance provides a meaningful cultural lens, other cultural dimensions such as collectivism, masculinity, and uncertainty avoidance may also influence technology adoption and warrant further investigation. Therefore, future research is encouraged to explore additional cultural factors, employ longitudinal designs, and extend the analysis to other sectors or geographical contexts to enhance the generalizability of findings.

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