

Mobile Payment Integration and Perceived Job Creation in Retail Businesses: Evidence from Guangdong Province

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Abstract: Mobile payment research has long focused on “adoption” as its core concern, with explanatory frameworks largely derived from consumer technology acceptance behavior. However, research examining the organizational impact of technology integration into daily operations from the perspective of retail enterprise users remains limited. This paper, based on questionnaire data from 300 retail enterprise respondents in Guangdong Province, examines the associations of mobile payment adoption intensity, transaction-use intensity, and merchant satisfaction with retailers’ perceived job creation. These three variables correspond to the access, actual use, and post-use evaluation aspects of mobile payment integration. This study employs ordinary least squares regression with HC3-robust standard errors for analysis. The results show that merchant satisfaction has the largest standardized coefficient, followed by transaction-use intensity. Mobile payment adoption intensity was not a significant predictor under HC3-robust inference. The research indicates that retailers’ perception of the employment impact of mobile payment is associated with continuous use and positive experiences rather than with technology access alone.

Keywords: Mobile payment; Retail businesses; Merchant satisfaction; Perceived job creation; Cross-sectional study

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1. Introduction

Mobile payments have evolved from a simple tool for transferring funds into the daily transactions, settlements, reconciliation, and customer service activities of retail businesses. Existing research largely explains this phenomenon within the framework of technology acceptance, consumer adoption, and willingness to continue using the technology, emphasizing the roles of variables such as perceived usefulness, ease of use, network effects, and trust^[1-3]. Recent reviews also point out that mobile payment research still primarily focuses on willingness to adopt and individual users, while attention to merchants, continued use, and organizational consequences is relatively limited^[4-6]. However, when payment technology is continuously used in business operations, retail operators will also form judgments about its organizational and social consequences, such

as whether it expands service capabilities, creates new digital tasks, or relates to future labor demand. While these judgments are not equivalent to actual employment changes, they are a necessary starting point for understanding discussions related to the social effects of technology.

Studies by Sleiman *et al.*, Yan *et al.*, and Zhao and Bacao have shown that factors such as trust, risk, perceived value, and convenience significantly influence the use of mobile payments ^[7-9]. However, simply adopting this technology does not guarantee long-term stable use or a good user experience. Surveys of merchants also indicate that cost burden, perceived risk, operational complexity, and perceived value are the main obstacles to merchants' continued use of mobile payments. Irianto and Chanvarasuth likewise identified important barriers to mobile-payment adoption among MSMEs ^[10].

Despite the increasing body of literature, two shortcomings remain. First, existing research largely focuses on the consumer perspective, repeatedly exploring consumers' willingness to accept and continue using mobile payments. There is little research on how merchants integrate payment tools into transaction processes, settlement and reconciliation, exception handling, and customer service. Second, user adoption behavior is often used to infer organizational influence, but the situation becomes more complex after technology implementation. System usability, actual usage frequency, and service experience often vary.

Payment integration involves multiple dimensions. Which dimension is most closely related to retailers' assessment of the impact on organization and employment? Existing evidence provides limited explanation. This distinction is particularly noteworthy in Guangdong Province. Mobile payment is already highly prevalent there, and a simple binary "used or not used" approach is insufficient to clarify the differences between retailers. After widespread adoption, differences between businesses are more reflected in transaction volume, daily reliability, settlement experience, and the service provider's ability to solve problems. Retailers' perception of the employment impact is not determined at the moment of activation. It stems more from daily operational experience.

In this study, perceived job creation (PJC) refers to retailers' perceptions of the employment impact of mobile payments, including potential staffing needs, technical positions, part-time opportunities, and new job responsibilities. PJC is relevant because it captures how retailers interpret the organizational and employment implications of mobile-payment integration.

Therefore, this study places mobile payment adoption intensity, transaction-use intensity, and merchant satisfaction within the same analytical framework to examine whether they exhibit differentiated conditional associations with retailers' perceived job creation. The analysis includes standardized coefficients, the incremental contribution of each predictor variable to R^2 , multicollinearity diagnostics, and HC3-robust inference results. The model incorporates access, actual use, and post-use evaluation as conceptually distinct but empirically correlated dimensions, expanding the focus from "adoption" to "usage process" and "experience feedback," while also avoiding conflating retailers' subjective perceptions with objective changes in employment.

2. Theoretical framework and research hypotheses

2.1. Payment integration: From availability to user experience

The organizational significance of payment technology depends not only on whether it is adopted. Mobile payment adoption intensity reflects the coverage and embedding depth of mobile payment infrastructure by retail enterprises; transaction-use intensity reflects the actual use of payment tools in regular operations;

and merchant satisfaction is the post-use evaluation by operators regarding speed, reliability, cost, security, and service experience. Mobile payment adoption intensity therefore corresponds to the infrastructure and implementation dimension. A high mobile payment adoption intensity score only indicates broad coverage, but it does not reflect the actual frequency of system use, nor does it indicate whether its practical performance is satisfactory.

Transaction-use intensity reflects the actual use of mobile payment by merchants in their daily transactions. This covers usage during peak hours, the degree of priority over cash or debit cards, processing frequency, and the impact of promotional activities on payment transaction volume. Mobile payment has become an integral part of daily transactions, and consumers have grown accustomed to it. Consequently, occasional service disruptions do not interrupt usage.

Merchant satisfaction is an evaluation after use. Factors such as transaction speed, system stability, downtime, cost, security, customer service, and integration with daily operations collectively constitute a merchant's overall evaluation of a payment tool. Therefore, satisfaction is not merely a matter of whether the system is adopted or how often it is used; it reflects the quality of the experience after adoption. Adoption makes use possible, repeated use accumulates experience, and these three dimensions are interconnected and indispensable.

Transaction cost theory provides a theoretical explanation for the relationship between transaction-use intensity and positive organizational evaluation. From a transaction-cost perspective ^[11], mobile payments may reduce several forms of transactional friction, including waiting, cash handling, reconciliation, and information verification. By reducing friction in these transactions, retailers can improve transaction speed, serve more customers, and reallocate human resources to service and digital support roles. Research on digital transformation also suggests that the value of technology lies not in the purchasing behavior itself, but in integrating digital tools into daily operations, combining them with organizational capabilities, and their impact on value creation ^[12,13]. These perspectives provide a theoretical framework for the relationships proposed in this study, but this study does not directly measure cost reduction, process restructuring, or task restructuring. Furthermore, high transaction frequency may simply reflect the level of existing business activity, and positive attitudes may simultaneously increase satisfaction and perceived employment opportunities.

This study understands the integration of mobile payment from three aspects: access, actual use, and post-use evaluation. Mobile payment adoption intensity reflects whether mobile payment is fully configured. It focuses on whether merchants have configured and promoted mobile payment, and whether these payment methods can cover different business and transaction scenarios. The transaction-use intensity reflects whether it is frequently used in actual transactions. It emphasizes not how many payment tools have been installed, but rather "how much they are actually used." Merchant satisfaction reflects whether merchants recognize its usage effect and are willing to continue relying on it. The core lies in whether merchants consider this system "user-friendly and worth relying on for the long term."

2.2. The formation of perceived job creation

Rogers' diffusion of innovations theory holds that users' evaluation of a technology is influenced by multiple factors ^[14]. These factors include whether it has more advantages than the original method, whether it can adapt to the existing business processes, whether the operation is complex, and whether the usage effect is easy to observe. The wider the coverage of mobile payment is, the more merchants can use it in different business

scenarios. As the usage frequency increases, especially during peak customer flow periods, merchants can also more clearly assess its stability, convenience, and efficiency. A good user experience may make merchants more aware of the benefits that mobile payment brings to business operations. However, the impact of mobile payment on employment may have two sides. On the one hand, it may generate new tasks such as digital support, data analysis, customer service, and abnormal transaction handling, thereby bringing about new job positions or personnel demands; On the other hand, it may also replace repetitive tasks such as cashiering and reconciliation, reducing the demand for some traditional positions. Here, PJC measures what merchants “believe” that mobile payment may have an impact on employment, rather than how many employees enterprises actually increase or decrease. The study simultaneously incorporated the mobile payment adoption intensity, transaction-use intensity, and merchant satisfaction into the regression model, and examined the relationship between each variable and PJC after controlling for the other two variables, respectively. Accordingly, this paper proposes the following hypotheses:

H1: Mobile payment adoption intensity is positively associated with perceived job creation.

H2: Transaction-use intensity is positively associated with perceived job creation.

H3: Merchant satisfaction is positively associated with perceived job creation in retail businesses.

2.3. The theoretical positioning of the experience dimension

In this study, “experience” is operationalized as merchant satisfaction—that is, operators’ overall evaluation of the speed, reliability, cost, security, and service support associated with mobile payment. Merchant satisfaction captures a distinct post-use evaluation. It is formed after merchants actually use the technology, whereas adoption indicates availability and transaction-use intensity reflects usage frequency.

The expectation-confirmation model provides an effective post-adoption logic ^[15]. Users initially have expectations regarding the usability and performance of a system. Once they use it, they gain actual experience and compare this experience with their expectations. If expectations are met, satisfaction increases. Satisfaction, along with perceived usefulness, influences users’ continued willingness to use the system. This logic is particularly applicable to merchants. Their evaluation of payment systems stems from repeated assessments conducted in daily operations, considering factors such as settlement speed, reliability, cost, security, downtime, customer feedback, and troubleshooting.

Adoption is the foundation of usage, while repeated use enables merchants to evaluate the payment system. While mobile payment adoption intensity, transaction-use intensity, and merchant satisfaction each reflect different aspects of payment integration, they are also correlated. Because pairwise correlations in the study cannot reveal a unique association between each variable and perceived job creation, all three predictors are included in the same regression model.

This study employs a regression model to test three hypotheses regarding the conditional associations between specific independent variables and perceived job creation (PJC), while controlling for other variables. H1 examines whether mobile payment adoption intensity positively influences PJC after controlling for transaction-use intensity and merchant satisfaction; H2 examines whether transaction-use intensity positively influences PJC after controlling for mobile payment adoption intensity and merchant satisfaction; and H3 examines whether merchant satisfaction positively influences PJC after controlling for mobile payment adoption intensity and transaction-use intensity. Comparing these conditional associations reveals which factor is more strongly linked to PJC; however, this does not imply the establishment of a causal relationship or indicate which

factor plays a dominant role

Figure 1 outlines the theoretical model of this study. The model treats the mobile payment adoption intensity, the transaction-use intensity, and merchant satisfaction as three interrelated dimensions of the mobile payment integration process, and hypothesizes that all three are positively associated with perceived job creation.

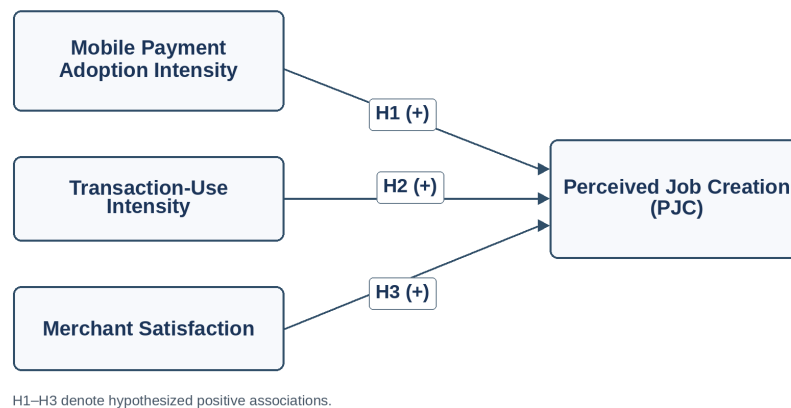


Figure 1. Theoretical model: Mobile payment integration and perceived job creation in retail businesses

3. Research design

3.1. Data and analytical sample

This study uses cross-sectional survey data from 300 representatives of retail businesses in Guangdong Province. A convenience sampling approach was used to recruit retail managers and business representatives from urban, rural, and urban–rural fringe areas in Guangdong Province. The participating enterprises covered food and beverages, clothing and accessories, home and furniture, electronics and appliances, health and beauty products, books and stationery, and sports and outdoor products. Approximately 36.7% of the businesses had operated for fewer than five years, 58.7% for five to ten years, and 4.7% for more than ten years. Mobile-payment experience also varied: 4.7% had used it for less than one year, 5.7% for one to two years, 19.0% for three to four years, 44.0% for five to six years, and 26.7% for more than six years.

The questionnaire collected information such as the number of years the businesses have been operating, product categories, and the duration of mobile payment usage. These variables were only used to describe sample characteristics and were not included as control variables in the regression model. The sample covers multiple retail industries. Apparel and accessories and food and beverages account for the largest share, followed by home goods, electronics, personal care and beauty, books and stationery, and sports and outdoor products retail. Most businesses have been operating for five to ten years and have been using mobile payments for five to six years.

3.2. Variables and measurement boundaries

Perceived job creation (PJC) in the retail sector is the dependent variable and is represented by the mean of seven items. The items concern perceived new job opportunities, additional staffing requirements, part-time

work, technical staff, and new roles in retail businesses. Sample statements include “Mobile payment systems seem to require additional staff in retail stores” and “Mobile payment technology appears to create new roles in retail businesses.” Mobile payment adoption intensity was formed from seven items assessing the integration, coverage, promotion, and operational importance of mobile payment. A sample item was “Mobile payment options have become essential to the business operations.” Transaction-use intensity was formed from nine items concerning routine frequency, peak-hour use, processing speed, promotional activity, and preference over alternative payment methods; one item stated, “I frequently use mobile payments for transactions.” Merchant satisfaction was formed from six items covering integration, transaction speed, reliability, customer service, cost, and security. Sample items included “I am satisfied with the speed of transactions when customers use mobile payments” and “The mobile payment systems I use are reliable and experience minimal downtime.” All items used a four-point agreement scale, and composite scores were calculated by averaging the corresponding items.

Prior to the formal survey, the survey tool was pre-tested with 20 respondents. The Cronbach’s alpha coefficients for the pre-test sample were: mobile payment adoption intensity 0.752; transaction-use intensity 0.763; merchant satisfaction 0.757; and PJC 0.777. These alpha coefficients all exceeded 0.70 and were used as preliminary checks of internal consistency during questionnaire development.

3.3. Estimation strategy

Descriptive statistics, including the mean, standard deviation, and Pearson correlation coefficient for each variable, were calculated. Ordinary least squares regression analysis was used to examine the association between PJC and mobile payment adoption intensity, transaction-use intensity, and merchant satisfaction. Standardized regression coefficients are reported to compare the relative magnitudes of coefficients for different predictors. Variance inflation factor (VIF) tests were run to check for linear overlap among the predictors as part of model diagnostics. To evaluate each predictor’s unique conditional contribution, the full model was compared against models omitting one predictor at a time; the resulting R^2 changes were recorded.

HC3 heteroscedasticity-robust standard errors and 95% CIs were used for inference. HC3 was chosen for its robustness to unequal variances and its conservative behavior in finite samples. It affects the standard errors (hence the uncertainty around estimates), but leaves coefficients and R^2 unchanged. ΔR^2 in this paper denotes the loss in sample R^2 when a predictor is removed while others remain, capturing that variable’s conditional contribution. This value excludes shared explanatory variance, so it cannot be used for causal inference.

The judgment of model results is based not only on statistical significance but also on a careful consideration of coefficient magnitude, robust confidence interval range, multicollinearity diagnosis, and changes in R^2 after removing individual variables. Furthermore, because the predictor variables are highly correlated, changes in standardized regression coefficients and R^2 should be considered complementary rather than surrogate indicators. They reflect the influence of each variable from different perspectives and cannot be directly compared in magnitude, nor can they be used to determine which variable is more “important.”

Several supplementary analyses were conducted to assess the robustness of the findings, including influence diagnostics, bootstrap confidence intervals, general dominance analysis, repeated cross-validation, Spearman rank correlations, and checks for responses at the scale maximum.

4. Results

4.1. Descriptive statistics and correlation analysis

The results are presented in four parts. The first reports the means, standard deviations, and correlations of the variables; the second presents the OLS regression results and the relative contribution of each predictor; the third reports the results based on HC3-robust standard errors; and the fourth presents the supplementary robustness and diagnostic analyses.

Table 1 shows that the means of the four core variables range from 3.55 to 3.58, with standard deviations of approximately 0.30 to 0.34, indicating generally favorable evaluations but limited variation. Mobile payment adoption intensity, transaction-use intensity, and merchant satisfaction are positively correlated with PJC, with coefficients of 0.597, 0.692, and 0.736, respectively. Correlations among the three predictors range from 0.654 to 0.773. These results indicate substantial shared variance and motivate conditional regression analysis.

Table 1. Descriptive statistics and Pearson correlations

Variable	Mean	SD	1	2	3	4
1. Mobile payment adoption intensity	3.577	0.307	1.000			
2. Transaction-use intensity	3.570	0.300	0.721	1.000		
3. Merchant satisfaction	3.552	0.337	0.654	0.773	1.000	
4. Perceived job creation (PJC)	3.576	0.327	0.597	0.692	0.736	1.000

The predictor intercorrelations indicate substantial shared variance, motivating conditional regression and VIF diagnostics.

4.2. Main regression and relative contributions

Table 2 reports the OLS results. The model accounted for 58.5% of the variance (adjusted $R^2 = 0.580$, $F = 138.904$). With the other predictors controlled, transaction-use intensity ($B = 0.268$, $\beta = 0.246$) and merchant satisfaction ($B = 0.462$, $\beta = 0.475$) remained positive predictors of PJC. Mobile payment adoption intensity showed a weaker coefficient ($B = 0.117$, $\beta = 0.109$). Standardized coefficients placed satisfaction first ($\beta = 0.475$), followed by usage intensity ($\beta = 0.246$), then adoption intensity ($\beta = 0.109$).

Table 2. OLS regression results and relative contributions (dependent variable: perceived job creation in retail businesses)

Predictor	B	SE	β	t	Unique ΔR^2	VIF
Constant	0.561	0.157	—	3.578	—	—
Mobile payment adoption intensity	0.117	0.059	0.109	1.975	0.005	2.185
Transaction-use intensity	0.268	0.072	0.246	3.718	0.019	3.112
Merchant satisfaction	0.462	0.059	0.475	7.842	0.086	2.612
Model statistics	$R^2=0.585$	Adj. $R^2=0.580$	$F=138.904$	$N=300$	—	—

After removing merchant satisfaction, usage intensity, and adoption intensity one by one, the sample R^2 decreased by 0.086, 0.019, and 0.005, respectively. The VIF values ranged from 2.185 to 3.112, all below 5.

4.3. Robustness analysis

With 300 retailers in the sample, relatively modest coefficients can still reach significance, so p-values alone received limited weight in our interpretation. **Table 3** provides HC3-robust estimates. Usage intensity and

satisfaction had positive coefficients with confidence intervals that did not include zero; robust standard errors did not weaken these associations. For adoption intensity, however, the robust t-value was only 1.700, and the confidence interval included zero, missing the 0.05 significance level. These results support H2 and H3 as associational hypotheses, but not H1. Taken together, once usage intensity and satisfaction were accounted for, adoption intensity offered little additional leverage in predicting retailers' PJC.

Table 3. HC3-robust standard-error estimates (dependent variable: perceived job creation in retail businesses)

Predictor	B	HC3-robust SE	Robust t	95% CI	Conclusion
Mobile payment adoption intensity	0.117	0.069	1.700	[-0.018, 0.251]	Not significant at 5%
Transaction-use intensity	0.268	0.091	2.943	[0.089, 0.448]	Robust positive association
Merchant satisfaction	0.462	0.067	6.884	[0.330, 0.594]	Robust positive association

Note. All coefficients and statistics are calculated from the analytical sample of $n = 300$.

4.4. Robustness and diagnostic analyses

Table 4 shows that the impact of handling a single out-of-range transaction-use intensity value on the estimation results is negligible. Retaining the value, recoding it to 4.000, or excluding the corresponding observation yields R^2 values of 0.585, 0.585, and 0.582, respectively. Under these three model settings, both transaction-use intensity and merchant satisfaction showed positive conditional associations with PJC under HC3-robust inference; the 95% confidence interval for mobile payment adoption intensity includes zero.

Table 4. Sensitivity of HC3 regression estimates to the out-of-range transaction-use intensity score

Specification	n	R^2	Mobile payment adoption intensity B [95% CI]	Transaction-use intensity B [95% CI]	Merchant satisfaction B [95% CI]
Retained at 4.444	300	0.585	0.117 [-0.018, 0.252]	0.264 [0.090, 0.439]	0.463 [0.332, 0.594]
Recoded to 4.000	300	0.585	0.117 [-0.018, 0.251]	0.268 [0.089, 0.448]	0.462 [0.330, 0.594]
Observation excluded	299	0.582	0.116 [-0.019, 0.251]	0.268 [0.088, 0.447]	0.462 [0.330, 0.594]

Table 4 shows that the handling methods adopted for the “transaction-use intensity” score that exceeds the normal range have little impact on the results. Regardless of whether this value is retained, re-encoded to 4.000, or eliminated, under HC3-robust inference, both “transaction-use intensity” and “merchant satisfaction” maintain a positive correlation with PJC, while the confidence interval for “mobile payment adoption intensity” contains zero. Further influence diagnostics, bootstrap resampling, and general dominance analysis reached similar conclusions: in terms of contribution to R^2 , “merchant satisfaction” made the greatest contribution, followed by “transaction-use intensity” and “mobile payment adoption intensity.” The above results reflect the relative correlation among variables and should not be interpreted as causal effects. See **Table 5**.

Table 5. Bootstrap confidence intervals and general dominance analysis

Predictor	B	Bootstrap 95% CI	General dominance weight	Share of model R^2 (%)	Rank
Mobile payment adoption intensity	0.117	[-0.012, 0.249]	0.128	21.8	3
Transaction-use intensity	0.268	[0.093, 0.435]	0.196	33.5	2
Merchant satisfaction	0.462	[0.334, 0.591]	0.261	44.7	1

Note. Bootstrap intervals are percentile intervals based on 5,000 case-resampling draws. General dominance weights sum to the full-model R^2 of 0.585.

Repeated 10-fold cross-validation with 20 repetitions yielded a mean out-of-fold R^2 of 0.572 (SD = 0.003; range = 0.566–0.576), an RMSE of 0.214, and an MAE of 0.166. These results were close to the in-sample R^2 of 0.585, RMSE of 0.211, and MAE of 0.163, indicating limited optimism in the apparent model fit.

Spearman rank correlations confirmed the same ordering as the Pearson correlations. The rank correlations with PJC were 0.583 for adoption intensity, 0.670 for transaction-use intensity, and 0.718 for merchant satisfaction (all $P < 0.001$). Across the four variables, 12.0% to 17.7% of responses fell at the scale maximum, which reduced variation, but the rank-based results remained consistent with the main findings. See **Table 6**.

Table 6. Distributional and rank-correlation diagnostics

Variable	Mean	SD	Skewness	At scale maximum (%)	Spearman rho with PJC
Mobile payment adoption intensity	3.577	0.307	-0.214	17.3	0.583
Transaction-use intensity	3.570	0.300	-0.327	12.0	0.670
Merchant satisfaction	3.552	0.337	-0.373	15.3	0.718
Perceived job creation (PJC)	3.576	0.327	-0.369	17.7	—

Note. The scale maximum was 4.000. Spearman correlations between each predictor and PJC were all statistically significant at $P < 0.001$.

5. Discussion

5.1. From “whether to adopt” to “how to integrate”

The three payment dimensions show different conditional associations with PJC. Mobile payment adoption intensity is positively correlated with PJC at the bivariate level, but its conditional coefficient does not reach the 5% threshold under HC3-robust inference. Transaction-use intensity and merchant satisfaction retained positive conditional associations under HC3-robust inference. This suggests that adopting mobile payments is only the starting point; actual usage and merchant experience are likely more closely related to PJC. Research should focus more on whether merchants frequently use mobile payments in actual transactions; whether mobile payments have become part of their daily operations; and whether merchants recognize their speed, stability, cost, security, and service support. When mobile payments are already relatively widespread, “adoption intensity” is only a rough indicator. Two companies may have adopted similar numbers or types of payment tools, but one may use them frequently and have a good experience, while the other may use them infrequently or have a poor experience; therefore, their evaluations of the organizational value of mobile payments may differ.

The findings align with a range of possible explanations, including reduced transaction costs, digital transformation, and post-adoption effects. However, this study cannot pinpoint the specific mechanism leading to these observed relationships. More frequent merchant use of mobile payments may reduce waiting and reconciliation times, support higher transaction volumes, or generate additional service-related tasks. Frequent use may also reflect higher foot traffic or stronger existing business performance. Similarly, merchant satisfaction may stem from a stable payment system and good service quality, but it could also reflect a general acceptance of digital technologies among merchants. The relatively low conditional coefficient for mobile payment adoption intensity suggests that, once actual usage and merchant experience are taken into account, adoption intensity provides relatively little additional information about PJC. Given the widespread availability of mobile payments, differences in access alone may have limited explanatory value, while actual usage and

merchant experience appear to distinguish merchants' assessments of PJC more clearly. Adoption remains a prerequisite for subsequent use; focusing solely on "adoption" or "adoption level" ignores changes that occur after the technology enters the enterprise—such as actual usage frequency, the degree of integration into daily processes, and merchant user experience and evaluations.

5.2. The value and boundaries of perceived job creation

PJC measures what changes merchants believe mobile payment may bring to business operations and employment, rather than what changes have actually occurred to the enterprises. This indicator cannot replace objective employment indicators such as the number of employees or the recruitment rate, but it provides supplementary information from the perspective of merchants. This information helps researchers understand how merchants perceive the potential value of mobile payment integration for business organizations and employment.

The relationship between PJC and the three dimensions of mobile payment may be influenced by several factors. Firstly, since both merchant satisfaction and PJC were self-assessed by the same group of respondents in the same survey, the "common method bias" may enhance the observed correlation between the two ^[16]. Secondly, if respondents answer the two sets of questions based on their overall impression of mobile payment, it may be difficult to distinguish between satisfaction and employment impact, thus causing an overlap between the two concepts. Third, some overlooked business characteristics, such as business size, customer traffic, transaction volume, digitalization capabilities, and growth expectations, may simultaneously influence the mobile payment adoption intensity, transaction-use intensity, merchant satisfaction, and PJC. As with all single-source cross-sectional data, these observed associations should be interpreted as statistical associations rather than causal evidence.

5.3. Theoretical and practical implications

Research on mobile payment should not merely view "adoption" as a one-off decision, but should distinguish between adoption, usage, and the experience after usage. If only the adoption of a technology is reported, it may mask the quality of use closely related to the perception of results. Cognitive outcomes and objective outcomes hold different positions at the level of evidence. When studying the social impact of digital technology, different types of evidence are needed for these two types of results. Cognitive results are applicable to explaining users' judgments and expectations, while objective results require the support of time series data, enterprise records, or administrative data.

Evaluating or optimizing mobile payment services should not be based solely on "how many systems are installed" or "how many merchants are registered." These metrics only reflect the service's coverage and do not necessarily indicate the quality of the actual user experience. Service providers need to focus on transaction stability, settlement speed, fee transparency, security, timely problem handling, system downtime frequency, and after-sales response time. These practical service factors are closely related to merchant satisfaction and, consequently, whether the payment system can truly integrate into the daily operations of retail businesses, becoming a stable and reliable operational tool, rather than just a payment function that is "installed but rarely used."

Infrastructure coverage alone is not a sufficient monitoring indicator for policymakers and industry programs. Evaluation should separate access from transaction use and complement perception surveys

with operational indicators like transaction volume, failed-payment rates, settlement time, employee roles, recruitment plans, and staff training needs. This kind of monitoring could show whether digital-payment expansion shifts work tasks or simply alters how merchants view the technology.

For retail business managers, the focus of mobile payment management is not just “whether to adopt it,” but how to truly integrate the payment system into daily operations after adoption. Businesses need to clearly define specific arrangements regarding employee training, reconciliation processes, responsibility allocation after transaction failures, methods for transmitting secure information, and feedback channels for service issues. The quality of these process designs may shape whether high-frequency mobile payments improve operational efficiency or instead shift more processing burdens to frontline employees. Therefore, simply looking at the adoption rate or the number of connections makes it difficult to identify actual operational problems. Observing merchant satisfaction in conjunction with transaction volume can help managers identify situations that are not apparent from adoption data alone.

5.4. Limitations and directions for future research

Based on the results obtained from the convenience sample in Guangdong Province, caution should be exercised when extending it to other scenarios. Furthermore, the cross-sectional single-source design adopted in this study is also insufficient to support causal inference. Future research can focus on the following three aspects. Firstly, by using the data at the item level, the reliability, factor structure, and discriminant validity of variables such as “mobile payment adoption intensity,” “transaction-use intensity,” “merchant satisfaction,” and “perceived job creation (PJC)” can be evaluated more rigorously. Secondly, adopting a multi-source design to combine the subjective evaluations of merchants with objective indicators (such as transaction records, settlement volume, number of personnel, recruitment plans, and job Posting information) helps reveal whether positive perceptions correspond to actual operational and personnel allocation adjustments. Thirdly, a longitudinal research design should be adopted to establish the chronological order. By tracking the situation of the same batch of enterprises before and after significant changes in payment usage methods, it is possible to clarify whether the changes in transaction-use intensity and service experience precede the perceived changes in employment impact, task allocation, and personnel allocation. In addition, comparing the scale of enterprises, product categories, geographical locations, and digital capabilities can also help clarify under what conditions payment technology will complement or replace the labor force.

6. Conclusion

This study examined three dimensions—mobile payment adoption intensity, transaction-use intensity, and merchant satisfaction—and their differential conditional associations with retailers’ perceived job creation. Data from 300 representatives of retail businesses in Guangdong Province were analyzed.

The research results show that the mobile payment adoption intensity, the transaction-use intensity, and merchant satisfaction are all positively correlated with the retailers’ perceived job creation. However, when the three factors are analyzed together, their performances are not the same: merchant satisfaction has the strongest correlation with PJC; The transaction-use intensity is still positively correlated with PJC. The mobile payment adoption intensity has not reached the statistical significance standard of 5%. That is to say, merely integrating or popularizing mobile payment cannot provide a sufficiently clear and independent explanation. This indicates

that compared with “whether merchants have connected to mobile payment,” “how much they actually use it” and “whether merchants are satisfied after using it” are more closely related to merchants’ views on the impact on employment.

This study distinguishes between access to, actual use of, and post-use evaluation of mobile payments, rather than treating them as a single outcome. This shift puts the focus on organizational integration and points to the need for future longitudinal and multi-source designs to further examine the boundary between perceived and objective employment outcomes.

Disclosure statement

The author declares no conflict of interest.

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