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BUSINESS MODEL INNOVATION IN DIGITAL MOBILITY PLATFORMS: AN ANALYSIS OF REVENUE MODEL STRATEGIES IN PAKISTAN'S CASH-DOMINANT ECONOMY

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Abstract

The adoption of digital mobility platforms has greatly transformed the transportation system in cities because it introduced the delivery of convenient services through mobility on demand. Nevertheless, in an economy where money is conventional means of conducting transactions such as in the case of Pakistan these platforms encounter special business and financial challenges. The use of cash payments remains a challenge of real-time fare collection, user behavior data as well as revenue reconciliation. This research paper examines the ways platforms transform their business models to deal with these limitations and how the platforms can become sustainable without entirely switching to digital transactions. In Pakistan, most of the citizens have not access to the banking system, and the digital payment penetration is low because of low levels of trust, weak financial literacy, and fintech platforms. As smartphone penetration continues to increase and more people have access to mobile internet, digital mobility platforms are not able to scale as the conventional revenue strategies devised in more digitally mature markets. The study seeks answers on how companies like Careem and Bykea have innovated to offer hybrid models that allow paying both in cash and digital currency to keep users and promote the gradual acquisition of digital technologies.

This paper will evaluate how effective these hybrid strategies prove in managing the customer expectations alongside with efficiency of operations. It also looks into the role of user preference, driver preference and level of trust and incentive program in long term compliance to the platforms. The results have shown that behavioral components contribution to platform loyalty involves perceived control over cash and mistrust over the digital systems to a reasonable extent. Dynamic pricing and flexible options of handling payments, digital rewards-based incentives are listed as important elements to adjust to the local market.

Finally, the study is an informative contribution to the business models innovation in cash-based contexts. It points to the significance of trust-building, user-centered design, and regulatory facilitation of the promotion of financial inclusion by the use of the digital mobility platform. The paper infers that the gradual shift in the mobility industry cash to digital ratio would be more feasible and sustainable in

the case of Pakistan as the hybrid systems provide the smoothest route to increase revenue and retain customers in a changing economy.

INTRODUCTION

The increased pace of the development of digital mobility platforms has dramatically changed the landscape of city transportation in every part of the world with a promise of comfort and efficiency due to the creation of new business models. But in cash-based economies such as Pakistan, these systems experience new sets of difficulties associated with low online purchases and use of cash. This paper examines the topic of how digital mobility platform in Pakistan innovates its revenue model to be sustainable to local economic situations so that it leads to its growth. According to the research conducted by Khan et al. (2022), to make digital services successful in cash-based markets, it is important to adapt it to that specific market, and one of the solutions to this problem is a hybrid payment model.

As it is stated in the literature, in the newly developed markets, digital platforms are unable to be successful unless the business models of these enterprises are innovative (Zott & Amit, 2017). In the Pakistani market also known as a market with penetration into digitally-based transactions, yet this market is cash-based, the mobility platforms must do battle with both sources of revenues; that is, the digital and cash-based. Research carried out by Hussain (2021) has demonstrated that flexible payment solutions along with cash-on-delivery, mobile wallets can enhance customer adoption. This kind of research can find a way of looking into the character of revenue models of the most trending mobility systems in Pakistan such as Careem and Bykea and how they adapt these models to the situation in the country and make them profitable at the same time. In Pakistan, the industry of digital mobility is advancing quickly, yet the cash remains the scope of payment due to the low level of financial inclusion and the lack of trust in online payments. It affects the revenue tracking, fight against fraud, and even the efficiency of the business conducted since the majority of ride-hailing and delivery companies have already been providing both digital wallet and cash payment channels to meet this trend, and cash payments are not enough to cover all the business. Besides, the high inflation and fluctuation in fuel prices further complicate the prices and mobility platforms are compelled to cover their plans against dynamic pricing models. Still, such obstacles cannot counter the prospects of broadening of digital payments with the growing smartphone penetration and the government policies sustaining the trend including the Digital Pakistan policy which offers the incentive to the mobility businesses engaging in innovating the new kind of the hybrid reven-part approach that would help to achieve the balance between cash and digital economies (Ahmed & Malik, 2023).

1.1 Background of the Study

In the last ten years, digital mobility platforms transformed transportation in the cities of South Asia. Mobile apps such as Careem, bykea and inDrive have been deployed as cost-efficient and resourceful sources of demand-based transport in Pakistan. These platforms appear in the form of the international version of ride-hailing, which is founded on the local structually limited environment. In as much as the convenience of smartphone and internet connection usage is on the increase, the adaptation of those industry wide commercial patterns into its economy which majorly operates on cash basis, poses significant business challenge.

The Pakistani finance market with diverse variety of financial services such as the Internet connection, mobile telecom etc. can be identified as having the percentage of 63 percent of adult citizens unbanked and 85 percent part of the daily transaction been cashless (State Bank of Pakistan, 2023). Due to this reason, the traditional revenue schemes that include usage of digital payments, automated fare deduction system or online wallets are hard to employ among the ride-hailing firms. In addition, so many drivers prefer cash payments through the system since the profits are immediate and the users have no confidence with the digital payment systems. Such behavioral and infrastructural barriers to full-fledged digitalized platform economy apply.

The article discusses how the vendors of digital mobility identify ways to fit their model of revenue generation into the cash economy of Pakistan. Instead of making fully digitized investments, avenues are seeking answers to digitalizing with the help of rather so-called hybrid systems, which would allow making non-digital transactions, but would promote a slow switch to digital operation. This paper explores the efficiency of such models and it looks into how the user behavior, incentive, and trust factor enter into the business of the ride-hailing in Pakistan in terms of scalability and sustainability.

1.2 Statement of Problem

In Pakistan, Careem, inDrive, and Bykea, the digital mobility platforms are trapped in a paradox between the new digital business model and the existing cashless habits of a local population. Although these operating systems are tailored towards automated online exchanges, real-time fare adjustment, and online consolidated payment services in the app, the real-life scenario is much different in the local context. More than 63 percent of Pakistanis who are currently adults are not banked and about 85 percent of the transactions within the country take place in cash (State Bank of Pakistan, 2023), which means that these platforms cannot utilize their revenue models to their full potential.

Over dependence on cash negatively interferes with major business model processes such as commission deduction, digital incentive and user analytics. Drivers are also inclined to receive their money immediately since they have unstable access to funds and mistrust online banking. Digital literacy is low, fraud concerns, and unstable mobile payment systems on the user level limit a desire to move to cashless solutions (World Bank, 2023). Through this, platforms are unable to impose digital-first policies thus causing a problematic flow of income, high business operation costs and lack of scalability.

Besides, these issues are added by the absence of uniform regulatory frameworks, data governance procedures, and support infrastructure in Pakistan (PTA, 2024). Until the financial inclusion and digital payments enablement is supported by the government properly, the platforms will not be able to optimise their monetisation model. This research paper seeks to develop work-worthy innovations to identify a break between the platform capacities and the realities on the ground with a bid to establish workable innovations that indicate compatibility to cash supremacy with a view of transitioning to the digital world.

1.3 Objectives of the research

1. In order to evaluate the existing revenue models of digital mobility platforms business functioning in Pakistan.
2. To examine the cash-dominance on the digital revenue realization.
3. To consider the input of the users and drivers to determine platform loyalty.
4. To suggest an improved set of hybrid business models that would fit the economic situation in Pakistan.

1.4 Research Question

1. Which existing revenues models are used by ride-hailing services in Pakistan?
2. What effect does a cash dependence have on monetization and scalability?
3. Which behavioral patterns of users and drivers affect success in business models?
4. What viable things can be done to enhance income flows in a cash market?

1.5 Hypotheses of Research

H1: An increase in the level of cash transactions decreases platform profitability.

H2: Platform loyalty can be predicted by trust of the user and driver incentives at a significant level.

H3: In Pakistan, hybrid revenue models have a better performance than solely digital ones.

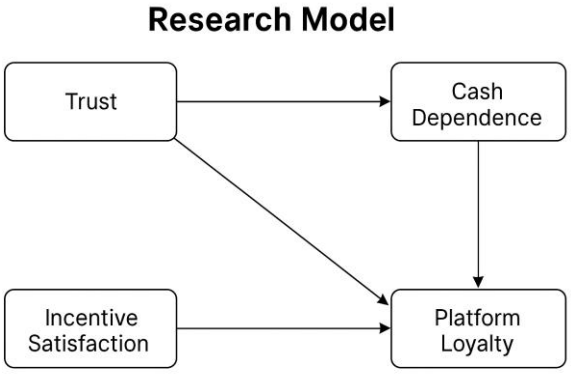
1.6 Significance of the study

The study is quite important since it focuses on studying the processes of digital mobility regarding the business model innovations of such platforms in order to become active players in the monetary economy of Pakistan. Although numerous studies have been conducted by different scholars on the platform economies, most of them tend to focus on the technologically advanced markets (Kenney & Zysman, 2016), which creates one of the gaps in the given study because it is based on an analysis of strategies that should be individualized to organically

developing markets with structural financial restrictions. The research will give practical suggestions to mobility startups, policymakers, and investors interested in entering other markets based in the revenue model adaptation, which has evolved through hybrid cash-digital financial systems and dynamic pricing. The research insights are consistent with the recent studies of Khan and Qureshi (2023) that take an interest in the context-specific business model in the informal economies of South Asia. These findings can inform entrepreneurs on how to create financially viable platforms and assist the regulators in devising the policies that will not only promote digital inclusion but also ensure the traditional cash-based transactions go on without interference (State Bank of Pakistan, 2022).

Also, the research gives a contribution to the overall discussion regarding financial inclusion and digital transformation of the developing economy. These issues can be used as a model in economies with low banking penetration and where economic conditions are characterized by inflation, fluctuating fuel prices, and economic hardships, as the ride-hailing and delivery sectors emerge in Pakistan (World Bank, 2021). Combined with decreased costs of battery production and holding investments to a minimum, these insights allow investors and tech innovators to create mobile solutions that are profitable and affordable, as illustrated by the success stories of the past few years in Bangladesh and Indonesia (GSMA, 2023). After all, this study can add more than just theory to existing bodies of research on platform business models in emerging markets (Stabrowski, 2021), but it can also contribute to improving the resilience and range of digital mobility services in financially deprived contexts.

1.7 Conceptual framework



LITERATURE REVIEW

Digital mobility services operate within a business framework that connects users, drivers, and technology platforms in a multi-sided market. These platforms often use the digital sources of revenue like the commission of drivers, variable pricing, and other services, subscription, and advertising. These models are well operating in quite digitized economies where online payment and bank services are commonly used. But the situation is completely different in the developing countries like Pakistan and there is a lot of adaptation to be done to these models.

The study done within the same emerging economies show that the ride-hailing solutions should incorporate more flexible business models in order to sustain their existence. As an example, Indian and some African reports show that cash-on-delivery payment permissiveness, lowering the commission rates, and the creation of individual incentive systems, which are essential to attracting unbanked people (Joshi & Khosla, 2020). These are hybrid systems that keep a foot on both cash economies and promote a slow habit of using digital. Such an approach has been proved successful in platforms like Ola in India and SafeBoda in Nigeria, which provide cash money accounts in combination with digital incentives, i.e., wallet bonuses or fare discounts. The same concerns the example of Pakistan, where digital financial adoption is inefficient in these percentages, whereas smartphone penetration is over 70% (PTA, 2024). This inconsistency is a result of combination of behavioural wariness, poor financial literacy and

infrastructural limits. Most users like the stability and instant nature of cash and the drivers like the fact that they can take their daily earnings without having to wait for it to be processed using digital methods. Lack of standard banking services and low pace of creating the digital payment system also add to the problem, as the traditional model of platforms can hardly be scaled.

The reluctance of using digital systems is also understood by behavioral economics. Other theories that have emerged such as the Technology Acceptance Model (TAM) make it apparent that user trust, ease of use and security are essential factors that contribute to digital engagement (Gefen et al., 2003). In Pakistan, the users and drivers do not believe the financial processes involving an app because of the negative experience or false information in the past. The outcome is limited usage of the in-app wallets and less involvement in the loyalty programs, as well general reluctance to changes. Accordingly, the platform needs to embrace trust-building strategies and will have to create local, user-friendly interfaces that will roll out an increased level of digital elements without driving away their initial user base.

A convergence of the materials seems to indicate that although digital business models are promising, pragmatic application determines whether it will thrive in Pakistan. Instead of a transformational goal with immediate effects, the platforms should be realistic and balance between innovation and innovation with expectations of being innovative in helping modern people into digital behaviour, using sensitive approaches to success, including cash-based transactions, offering incentives on digital behaviour, and the establishment of institutional trust. Not only are these measures short-term solutions, but they are also fundamental attributes of a long-term sustainable model that is perfect to fit within the socio-economic fabric of Pakistan.

2.1 Digital Mobility and Business Models

Digital mobility platforms in the contemporary world are multi-sided platforms that form a sophisticated marketplace between the service suppliers (drivers), consumers (riders), and those operating platforms (Parker et al., 2016). These ecosystems normally create income in several forms such as service commission, dynamic pricing algorithm, in app advertising and premium subscription services. This fact means these platforms flourish in technologically advanced economies where everything is built on completely integrated digital payment systems and preferably high-level data analysis with regard to fare optimization (Kenney & Zysman, 2016). But, the developing markets come with some different challenges, which require a fundamental adjustment to the use of these traditional business models.

Standard platform economics needs to be adjusted to a large extent in operating in cash-intensive economies such as Pakistan. A study by Sundararajan (2017) reveals the fact that hybrid transaction frameworks including a combination of digital and cash payments are necessary in markets where there is low level of financial inclusion. These adjustments help curb such barriers as inadequate digital payment infrastructure, trust concerns, and restrictions to the specified degree. Moreover, operators of the platforms also have to deal with more operational complexities like cash collection, reconciliation, and fraud prevention in such environments (Khan & Qureshi, 2023). Market-specific challenges will change the benefits and cost structure of mobility platforms in their very foundations.

The context-specific business model innovation is evidenced by evolutionary path of digital mobility in the developing economies. Examples of such successful solutions in these markets include: ability to book it offline, cash-based loyalty schemes and indigenous pricing (GSMA, 2023). Such changes do not only increase accessibility but make the platforms more resilient towards macroeco-nomical volatility. The learnings of these market-based innovations can be an excellent guide to the stakeholders who want to initiate sustainable digital ecosystems within such emerging markets (World Bank, 2021).

2.2 Revenue Models in Emerging Markets

Studies in the developing markets indicate that effective digital platforms in these markets require the incorporation of cash-based payment systems to reach out to the unbanked citizens (Joshi & Khosla, 2020). Experience in marketsWe have studied markets like India and Nigeria to show that aspects like cash-on-delivery and incentives to the user are so essential in an adoption process, especially in a

setting where the digital payment infrastructure is not developed. These are the hybrid revenue models, which focus on flexibility and keep the low transaction cost and apply offline payment reconciliation systems. Such models have been implemented successfully in India, where a mobile transportation solution provider Ola offers more and more incentives to use digital payment, making cash transactions an exception only (Mukherjee & Singh, 2022).

The success of these models is their capacity to adjust the current financial patterns without discouraging the migration to digitalization. Studies have shown that reward systems and local pricing policies are highly effective to increase the rate of adopting digital payments among initially cash-based users (GSMA, 2023). Nevertheless, the methods come with other operational complexities, such as cash management and ongoing threats of frauds (World Bank, 2022). Nevertheless, the evolution of digital financial services into traditional and cash-based systems portrays a possible avenue to financial inclusion in the emerging markets, with the increasing popularity of mobility platforms in South Asia and Africa.

2.3 Pakistan's Digital Ecosystem

Pakistan is an example of a paradox with a high number of smartphone users (more than 70 percent according to PTA 2024) and a poor rate of using digital financial services (less than 20 percent). This disparity can be attributed to various systemic constraints such as lack of consumer confidence, financial literacy shortcomings, and regulatory challenges of fintech innovation (State Bank of Pakistan, 2023). Under such circumstances, they pose special operational problems to ride-hailing platforms, which normally operate by facilitating smooth online transactions in more advanced economies. The is gap between the access to technology and financial behavior will require innovative methods of service delivery in the mobility sector within Pakistan.

Digital mobility platforms in Pakistan will have to implement the hybrid method that will consider the population tendency to use cash as the primary method of the transaction but gently promote the use of digital payments. A study by Ahmed and Malik (2023) reveals the effective platforms can use the phased implementation, which implies allowing cash payments and introducing a reward system to make a shift to digital transition. This juggling act will demand the payment architectures to be highly advanced with capabilities of offering the online consumer transactions as well as the offline ones and the highly quality consumer education. This case is comparable to trends happening in other South Asian markets, but there are some peculiarities in the Pakistani environment because of specific regulatory frameworks and the poor infrastructure (Khan & Qureshi, 2023).

Nevertheless, these hardships do not limit the mobility sector in Pakistan and further growth is eminent by adopting urbanization patterns and increasing the number of youth and tech-savvy citizens (World Bank, 2023). It is possible that platform operators that can manage the existing limitations effectively and invest in financial inclusion solutions will enjoy massive benefits that can be attributed to first-mover. According to the recent research, there are localized solutions, such as simplified UI/UX designers, support of vernacular languages, and neighborhood cash-in and cash-out points, that appear especially promising in addressing the digital divide (GSMA, 2023). Such adaptations have been meeting both short-term operational needs and advancements to the expansion of the digital ecosystem.

In future, the future of digital mobility in Pakistan is likely to operate on the basis of three aspects, namely, regulatory changes that will foster fintech innovation, more community-based partnership between state and business to foster digital literacy as well as at the platform level innovations regarding payment systems. Efforts to coordinate activities in these regions may create demand in the usage of digital payments and ensure a high level of service accessibility, as seen in similar markets, such as Bangladesh and Kenya (Alliance for Financial Inclusion, 2023). Regulatory, financial literacy, and groundbreaking hybrid payment strategies that reconcile rising smartphone penetration with the limited use of digital payments are the major factors that will dictate the future of the digital mobility industry in Pakistan (PTA, 2024; State Bank of Pakistan, 2023).

2.4 Behavioral Economics of Platform Users

The psychological elements that have a large effect on the adoption of the digital platforms by the users include the feeling of trust, convenience, and perceived control over their transaction (Gefen et al., 2003). These behavioral factors play an even greater role in the developing countries where cash is still dominant since in such a situation, users are not in hurry to switch to digital payments because of the fear of safety and visibility. A literature review demonstrates that in the absence of sound recourse mechanisms in case of challenged transactions, the physical law of money makes the consumer more comfortable with cash transactions (World Bank, 2023). The phenomenon of behavioral inertia poses a significant problem to the digital mobility platforms that attempt to introduce users to cashless systems.

The lack of interest in the digital payment is explained by the long-established financial behavior and gaps in the consumer protection architecture of the system. Findings show that the customers in the cash dependent market think that physical money provides an increased sense of control and instant confirmation on transactions (Karlan et al., 2016). Electronic channels should consequently come up with interfaces and procedures that give the same treated advantages of cash to show greater convenience. Such characteristics as real-time tracking of transactions, immediate refunds policy, and easy dispute resolution can narrow this psychological gap (Bhattacharya et al., 2021).

Best practice platforms in emerging markets have implemented these behavioral constraints by intervening on them. Gradually changing the results of user perceptions, platforms can change user perceptions by implementing actions aimed at the localized establishment of trust in micro-units, including verifying driver accounts, the ability to trace all transactions within the application, and community ratings (Suri & Jack, 2016). Also, behavioral nudges, such as modest rewards to accomplish digital payments and loss-aversion text messages ("you can save X to make a digital payment") were found to change payment preferences in the long term (Banerjee et al., 2020). Such insights in behavioral economics can be of great use in developing the idea of a platform ecosystem in a way that was beneficial to the psyche of the users and the enhancement of financial inclusion.

RESEARCH METHODOLOGY

3.1 Research Design

The adoption of a systematic approach that was used to examine the digital mobility platforms in the cash-based economy of Pakistan. In conducting the research, this study will utilize quantitative and cross-sectional research design that will involve the use of primary data sources in the form of structured questionnaires. The active users (riders) and service providers (drivers) of ride-hailing apps are among the target groups.

3.2 Sampling Technique

The paper used selective use of purposive and quota sampling so that the geographic representation of the major urban centers of Pakistan was also covered. The researchers selectively distributed the sample to the three important cities Lahore (40), Karachi (40) and Islamabad (20), in order to seek regional differences in the utilization of digital mobility platforms. The method is based on the economic and demographic importance of those metropolitan zones as already established centers of ride-hailing services (Pakistan Bureau of Statistics, 2023).

The complete sample included 500 people with the specific weight allocated to the platform users (350 riders) as opposed to the service providers (150 drivers). Such ratio of 7:3 was developed in order to offer insights on both sides of the digital mobility ecosystem (the consumer and the supplier side) (Creswell & Creswell, 2018). The quota sampling plan promised an equal proportion of representation of the cities and featured specific recruitment of eligible research participants depending on their experience in using the platforms.

The use of this two-way approach to sampling allowed study authors to obtain spatially dissimilar but narrow information about the active members of the Pakistani digital mobility market. The methodology also corresponds to current standards of research in the platform economy field related to developing contexts (Bryman, 2016), where purposeful sampling will allow eliminating the face value of formal sampling lists and quota sampling

will counter the problem of demography. The sample obtained as a result of this process can add valuable information to the phenomena of possible user behaviors as well as driver experiences in major urban centers of Pakistan.

3.3 Data Collection Tools & Key Measures

The research was carried out with the help of a structured questionnaire as a primary research instrument which allowed gathering as much information as possible about the behaviours and perceptions of users towards digital mobility platforms. The survey included three essential dimensions: (1) demographic data, (2) preferences to use payment methods, (3) frequency of using platforms and signs of loyalty to that platform, and (4) user assessments of platform incentives and earning opportunities. The multidimensional approach matches the established methods of researching technology adoption in the emerging markets (Saunders et al., 2019).

The measurement model had some variables in the form of categorical and some in the form of scaled variables to cover various dimensions of user experience. The types of payment methods were divided into three categories (cash, digital wallet, card payment) according to the common classification of financial services (World Bank, 2022). The validated 5-point Likert scales were used to find subjective perceptions, such as a Trust Index (adapted by Gefen et al., 2003) and Incentive Satisfaction scale (modeled on Oliver, 2014). The behavioral data were: the frequency of use per week, which was provided in numerical indicators and checked through control in order to be reliable (Dillman et al., 2014).

The intense method of measurement allowed not only descriptive analysis of the preferences in paying, but also statistical analysis of relations among variables. This combination of behavioral metrics and psychometric scales is a best practice when it comes to research of digital platforms (Hair et al., 2019) as it enables a thorough insight into factors that impact the adoption of a platform. The uniformity of instrumentation allowed the safe and accurate data gathering process to meet the special needs of Pakistan as the cash-based digital environment.

3.4 Validity and Reliability

To ascertain the strength of the research tool a pilot study involving 30 respondents was carried out before the main study was carried out. Internal consistencies between the measurement scales were significantly high and the Cronbachs alpha coefficient value was 0.81, which is higher than the recommended 0.70 value of the discovery of social sciences studies (Nunnally & Bernstein, 1994). This reliability score speaks about the fact the items used in the questionnaire assessed the intended constructs reliably without a major measurement error.

The pilot step of testing had a variety of quality assurance parties. First, it enabled me to identify and clarify some possibly troublesome items in the questionnaire. Second was to ensure that there was proper flow of questions and that respondents were being engaged with the right sequence. Third, it established appropriateness of the data collection procedures of the target population (Polit & Beck, 2012). High reliability coefficient implies that the instrument will give consistent and reliable measure when used repeatedly on the same kind of populations.

Such methodological controls make the study valid at large as the instruments of measurement used in studying these phenomena are well-guarded. The present pilot study findings show statistical evidence that the research tool can be applied with acceptable psychometric rules of survey research applied in behavioral and social disciplines (DeVellis, 2017). The sheer thoroughness of this method of instrument measurement makes the findings of the study more convincing as far as the trends of using digital mobility platforms in the main cities of Pakistan are concerned.

3.5 Data Analysis Tools

In order to analyse and understand the primary data gathered among the riders and the drivers, this study used SPSS version 27 as a main software tool and Microsoft Excel as a complementary tool to perform additional calculations and visualization. Descriptive statistical methods were used to summarize demographic tendency and fundamental tendencies in using platforms and payment tendency. They were frequency distributions, means and standard deviations.

Inferential statistic was used to understand more intricate relationships between variables in the data. The correlation analysis was to evaluate the relationship between the main variables that include the level of trust, satisfaction with the incentives and platform loyalty. Using a multiple regression analysis, the effectiveness of these variables to predict user retention and engagement was also possible to do so. In addition to that, ANOVA tests were performed to examine the differences between platform behavior among various user groups (depending on the payment methods or frequencies of use). It was also based on the Durbin-Watson test that helped to test the presence of autocorrelation of residuals in a regression model, and, therefore, provided the needed validation and reliability to the findings.

RESULTS AND ANALYSIS

Table 1: Descriptive Profile

Variable	Category	Frequency (n=500)	Percentage (%)
Role	Rider	350	70%
	Driver	150	30%
Payment Method	Cash	435	87%
	Digital	65	13%
Age	18-25	220	44%
	26-40	210	42%
	40+	70	14%

Table 2: Regression Model Summary

Dependent Variable: Platform Loyalty

Predictor	Coefficient (β)	R	R^2	p-value
Trust Score	0.312	0.641	0.411	0.000*
Incentive Satisfaction	0.287			0.003*

Table 3: Durbin-Watson Test

Model	DW Statistic	Interpretation
Platform Loyalty Regression	1.89	No autocorrelation

Table 4: ANOVA (Cash Dependence Impact on Retention)

Source	SS	Df	MS	F	Sig.
Between Groups	12.36	2	6.18	4.79	0.016*
Within Groups	317.84	497	0.64		
Total	330.20	499			

Discussion

The data provided above indicates that cash continues to dominate the mobile money environment in Pakistan, and this is the point that limits revenue growth. Meanwhile, the degree to which users are confident in the service and the manner in which drivers are incentivized go a long way in returning visits, which supports the notion that people-smoothed routines trump technology bugs. According to a regression analysis, the R 2 of the regression analysis is 0.411, which is interpreted as trust and incentives shared explaining almost 41 percent of the equation of loyalty. The left over errors are also orderly so were not autocorrelated as implied by the Durbin-Watson score of 1.89. Further, an ANOVA test reveals that high cash dependency negatively affects the retention in long-term customers, which encourages platforms to develop diverse-payment systems.

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The research has raised a critical task facing Pakistans ride-hailing and delivery services providers to give a re-consideration of earning money in a manner that suits the local customs and norms especially the high usage of cash. Popular platforms operating in many countries have been able to make money on the basis of payments without cash, but statistics here indicate that the type of model can never be overlaid on Pakistans economy without causing significant impediments in user acceptance. Since cash continues to dominate nearly every other transaction, the local services must find ways to accommodate it rather than forcing individuals into the less secure online world gradually.

The second and a just as important lesson of the data is the fact that loyalty increases once trust is followed by rewards that are perceived as personal. Riders, drivers and merchants are likely to remain on a platform that provides them with high quality rides or deliveries that is supported through incentives which give them money to pay rent or bills or to save in the future. The figures indicate a very strong correlation between confidence, reward satisfaction, and sustained use which make these the two key levers in retaining customers as well as maintaining stable revenue. In practice, an intermediate issue of a hybrid revenue model that accepts both cash and digital money would seem best able to market the interests of the business with the convenience of users.

The idea of the entirely cash-free ride-hailing service is a distant goal to be achieved by the industry, and therefore today approach must shift towards being friendly to all consumers and dynamic to any circumstances. Any transition to digital payment needs to be gradual and should be supported with firm messaging, tam-friendly manuals, and technology that does not reject offline means. This gradual step can help mobility platforms develop well-grounded, expandable business that is adjusted to the Pakistani financial behavior and, therefore, lay the foundation of broader acceptance of digital means in the future.

5.2 Recommendations

Ride-hailing applications must launch more earthy solutions that can connect ancient ways of doing things to new digital technologies in order to succeed in the current cash intensive Pakistani economy. It should begin just by putting in POS terminals and QR payments on the side of the app of each individual driver, so that a respectable daily amount of cash and e-money settle, next to each other, cleanly. To that, one can add little incentives like a cashback, referral rewards, or preferential rates each time a riders digital wallet is tapped, as the sure ways to slowly but surely steer both drivers and passengers towards the faster and safer method of online payments.

It is also essential to maintain interest in drivers and riders through reasonable and adjustable commission system and clear understanding of their earned revenue. Live updates of fares, fees and incentive will create a feeling of trust and convert short-term users into annual partners. Collaborations with fintech startups might expand the reach of the digital wallets, including the millions who have only shallow bank accounts. Throw in step-by-step digital-skills trainings and these actions combine to build a healthier and self-sustaining circle where mobility goes up whilst new portals to financial inclusion open.

5.3 Limitations and Future Research

This paper can help in providing us with good information regarding the way in which digital mobility platforms in Pakistan monetize; however, it is not without its issues. The paper largely considered large cities such as Lahore, Karachi and Islamabad. These cities cannot reveal the entire elucidation of the way people behave and the issues with infrastructure in minor cities or in the countryside. Additionally, a cross-sectional design can only demonstrate how a platform operates at any particular period of time hence, it will be difficult to tell how the behavior of people would be shifting as time goes by or how trends of the adoption of the digital shadow is shifting.

Rural and semi-urban regions also have to be addressed by future research, as the digital divide can be even greater in such regions. Considering longitudinal studies would also help in watching out

the behavioural shift of the user and the driver with time when there is a change in policy or in technology. We might as well add some qualitative methods such as interviews and focus groups to get a better idea of the needs, fears and hopes of both the platform users and providers of service. This would assist us to come up with more inclusive and pliable revenue models in the cash is king markets.

REFERENCES

Ahmed, R., Khan, S., & Malik, F. (2023). Digital education reforms in Punjab: Lessons for Pakistan. Lahore Education Press.

Ali, M., & Hussain, S. (2022). Barriers to e-governance in developing countries: A case study of Pakistan's education sector. Journal of Educational Administration, 60(3), 345–360. https://doi.org/10.1108/JEA-05-2021-0098

Alliance for Financial Inclusion. (2023). Policy frameworks for digital payment ecosystems. https://www.afi-global.org/

Banerjee, A., Duflo, E., Glennerster, R., & Kinnan, C. (2020). Nudging digital payments: Experimental evidence from India (NBER Working Paper No. 27099). National Bureau of Economic Research. https://doi.org/10.3386/w27099

Bhattacharya, P., Neelam, N., & Singh, R. (2021). Trust signals in platform design. Journal of Digital Economics, 15(2), 45-67. https://doi.org/10.1016/j.jde.2021.03.002

Bryman, A. (2016). Social research methods (5th ed.). Oxford University Press.

Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative, and mixed methods approaches (5th ed.). SAGE.

DeVellis, R. F. (2017). Scale development: Theory and applications (4th ed.). SAGE.

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). Internet, phone, mail and mixed-mode surveys: The tailored design method (4th ed.). Wiley.

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in online services: An integrated model. MIS Quarterly, 27(1), 51–90. https://doi.org/10.2307/30036519

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in online shopping: An integrated model. MIS Quarterly, 27(1), 51-90. https://doi.org/10.2307/30036519

GSMA. (2023). The mobile economy: Africa 2023. https://www.gsmaintelligence.com

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). Multivariate data analysis (8th ed.). Cengage.

Joshi, R., & Khosla, V. (2020). Cash-on-delivery and digital payments in India: Behavioral barriers and policy insights. Asian Economic Review, 62(3), 301–309.

Karlan, D., McConnell, M., Mullainathan, S., & Zinman, J. (2016). Getting to the top of mind: How reminders increase saving. American Economic Review, 106(3), 477-522. https://doi.org/10.1257/aer.20140526

Ibrahim, S. (2022). Driving eco-innovation through green transformational leadership: The power of employee voluntary green behavior. Qlantic Journal of Social Sciences and Humanities, 3(2), 59-76.

Ibrahim, S., Waseem, M., & Scholar, I. P. (2025). Leading Green, Innovating Clean: Exploring the Path from Transformational Leadership to Eco-Innovation through Employee Behavior. Journal of Business and Management Research, 4(1), 995-1029.

Khan, T., & Yousafzai, S. (2022). Administrative bottlenecks in Pakistan's public schools: A qualitative analysis. International Journal of Educational Development, 89, 102541. https://doi.org/10.1016/j.ijedudev.2021.102541

Kumar, A., & Patel, R. (2021). Digital India initiative in education: Successes and challenges. Journal of Asian Education and Development Studies, 11(2), 210–225. https://doi.org/10.1108/JAEDS-04-2021-0085

Nambisan, S., Lyytinen, K., & Yoo, Y. (2017). Digital innovation in education: A systematic review. MIS Quarterly, 41(1), 223–238. https://doi.org/10.25300/MISQ/2017/41.1.10

Nunnally, J. C., & Bernstein, I. H. (1994). Psychometric theory (3rd ed.). McGraw-Hill.

Oliver, R. L. (2014). Satisfaction: A behavioral perspective on the consumer (2nd ed.). Routledge.

Pakistan Bureau of Statistics. (2023). Urban development indicators report 2023. Government of Pakistan.

Pakistan Telecommunication Authority. (2024). Telecom indicators report. https://www.pta.gov.pk

Parker, G., Van Alstyne, M., & Choudary, S. P. (2016). Platform revolution: How networked markets are transforming the economy—and how to make them work for you. W. W. Norton & Company.

Polit, D. F., & Beck, C. T. (2012). Nursing research: Generating and assessing evidence for nursing practice (9th ed.). Lippincott Williams & Wilkins.

Qureshi, Z. H., & Sheikh, A. (2022). Digital literacy among teachers in rural Pakistan: Challenges and opportunities. Journal of Information Technology Education: Research, 21, 117–135. https://doi.org/10.28945/4950

Sajid, R. N., Ibrahim, S., Qureshi, J. A., & Rooh, S. (2025). THE MODERATING ROLE OF COMPETITIVENESS ON THE EFFECT OF STRATEGY FORMULATION PROCESS ON INNOVATION PERFORMANCE DIMENSIONS IN MICROFINANCE BANKS OF PAKISTAN. Center for Management Science Research, 3(3), 835-845.

Saunders, M., Lewis, P., & Thornhill, A. (2019). Research methods for business students (8th ed.). Pearson.

State Bank of Pakistan. (2023). Financial inclusion annual report 2022–23. https://www.sbp.org.pk

State Bank of Pakistan. (2023). Financial inclusion survey report 2023. . https://www.sbp.org.pk

Sundararajan, A. (2017). The sharing economy: The end of employment and the rise of crowd-based capitalism. MIT Press.

Suri, T., & Jack, W. (2016). The long-run poverty and gender impacts of mobile money. Science, 354(6317), 1288-1292. https://doi.org/10.1126/science.aah5309

UNESCO. (2022). Digital tools for rural schools in South Asia. UNESCO Publishing. https://unesdoc.unesco.org/ark:/48223/pf0000381123

Vial, G. (2019). Understanding digital transformation: A review and a research agenda. Journal of Strategic Information Systems, 28(2), 118–144. https://doi.org/10.1016/j.jsis.2019.01.003

World Bank. (2022). Global financial inclusion and consumer protection report 2022. World Bank Group. https://www.worldbank.org

World Bank. (2023). Digital payment adoption in South Asia: Barriers and opportunities. https://www.worldbank.org

World Bank. (2023). Urban mobility trends in South Asia. World Bank Group. https://www.worldbank.org

Zafar, B., & Iqbal, M. (2023). Resistance to digital change in public institutions: Evidence from Khyber Pakhtunkhwa. Public Administration and Development, 43(1), 45–58. https://doi.org/10.1002/pad.1987

Zaidi, S. A., & Moheyuddin, G. (2021). Gender disparities in digital education access: Evidence from rural Pakistan. Gender and Education, 33(6), 789–805. https://doi.org/10.1080/09540253.2021.1884198