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FINTECH ADOPTION IN PAKISTAN: MOBILE WALLET SERVICE (MWS) OVER GDP CAUSALITY EVIDENCE FOR PRE AND POST COVID-19

Muhammad Nouman Latif[1*], Dr Rasim Ozcan[1]
[1]Ibn Haldun Universitesi, Istanbul, Turkey

Article Info

*Corresponding Author
Email Id: muhammad.latif@stu.ihu.edu.tr

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Abstract

This paper aims to analyze the use of mobile wallet services in Pakistan and how they affect both the economy and people's daily lives. Socioeconomically disadvantaged households in Pakistan will swiftly use mobile wallet services due to the increasing adoption of technology. Socioeconomic considerations are the most commonly used criterion for determining whether someone is underbanked or unbanked. We used data on mobile wallet services (MWS) and GDP from the State Bank of Pakistan for the period of 2013 to 2022. We conducted a causality test to ascertain the relationship between Pakistan's GDP and mobile wallet service. We discovered that the relationship between mobile wallet service and GDP is unidirectional. We then conducted an ordinary least square regression analysis, and the findings showed a positive correlation between GDP and mobile wallet service, confirming the causality. Because it is incredibly user-friendly and convenient for clients, it demonstrates that this service attracts attention from the public. Many low-income individuals use it, especially during the COVID-19 pandemic, as opposed to using standard banking systems. We recommend that financial literacy initiatives be taken seriously in order to promote equal financial inclusion in the economy. Mobile wallet users should be encouraged to keep using the service in order to aid the government in revenue mobilization. Additionally, it prevents the movement of illicit funds or fraudulent activity in the financial sector.

1. Introduction

Numerous economic models have been employed from the dawn of human history in order to conduct economic activities. The original system was barter, where individuals traded products for goods to suit their necessities. Different precious metal coins have been used to buy and sell commodities over the years. Currency notes were later introduced in several nations, and soon they were used everywhere. Compared to coins, currency notes are easier to carry and are lighter in weight. Human physiology, however, suggests that Man is constantly looking for quick and practical solutions to minimize effort. A new era of services, including online banking and ATM cards, began in the 20th century with the information technology revolution. People still needed to go to banks or financial institutions to get their issues resolved. Additionally, according to Basu (2018), the Cashless Economy has the power to stop tax evasion, reduce the price of printing, storing, and shipping real cash, and boost transparency and vigilance. The advantages of a moneyless economy are primarily attributable to the government, according to a detailed evaluation of his work. On the other side, customers shouldn't be concerned about theft, duplicate notes, currency changes, or balance system payments any longer. On the other side, Pakistan is not an exception to the over 2.5 billion adult people who live in the world who lack access to formal banking accounts and other financial services. Only 7% of respondents had a bank account, and mentioned accounts with other types of financial institutions are severely underrepresented, according to the Financial Inclusion Insights Survey for 2015. This means that 93% of Pakistan's adult population is financially excluded. However, statistics on financial inclusion are steadily improving. Findex and the Access to Finance Survey have recognized this development. According to Findex, inclusion increased from 10% in 2011 to 13% in 2014, and access to credit increased from 10% to 23% (Rizvi *et al*., 2017). These issues can be resolved by setting up a bank account at home on an Android or iOS mobile device after the invention of mobile wallet services in several nations. The lower-middle class's (lower-middle class) lives are made easier by the mobile wallet service, which allows them to access a variety of services with just a few taps on their Android phones without having to stand in long lines outside of banks or financial institutions. This has a revolutionary impact on Pakistan's economy. Furthermore, there is no requirement that you deposit or collect money during office or working hours. Small grocery store owners nearby who are open from early in the morning until late at night also offer these services. Numerous services are available through these mobile wallets, including the payment of tolls, school and university fees, mobile prepaid and postpaid bills, utility bills, money transfers, online shopping, banking services, the provision of debit cards, the sending and receiving of donations, insurance, and investments. There are three different ways that digital or mobile wallet function: first, they connect the payment system to the bank account of the seller who is to be paid. Users can use the open wallets strategy (ii) to make online purchases, cashback transactions, and ATM withdrawals. (iii) Closed wallets only permit

transactions with the group of merchants who issued the wallet. In Pakistan, the top three mobile wallet service providers are. The first mobile wallet service, Easy Paisa, launched in 2009 with support from Telenor Pakistan and changed its name to Telenor Microfinance Bank in 2017. The customer can use a QR Code from Easy Paisa or Telenor Microfinance Bank to access digital payment services. With 186 million users in Asia, it is also the biggest telecom provider in the world. The biggest cellular provider in Pakistan, Mobilink, introduced JazzCash, sometimes known as MobiCash, in 2012. Due to its tens of thousands of branches around the nation, JazzCash holds close to 60% of the market. Additionally, it gives independent contractors access to a feature that enables them to withdraw money from their Payoneer accounts. JazzCash is associated with more than 100,000 accounts as a result. Ufone, a mobile service provider, and the U Microfinance Bank helped UPaisa launch their business in 2013. The creation of more output and jobs (Lewin & Sweet, 2005), improved firm productivity (Donner & Escobari, 2010), better capital accumulation (Venturini, 2009), lower transaction costs (Aker & Mbiti, 2010), better market functioning, and financial inclusion are just a few of the ways that some studies have linked mobile money to economic growth. Through increased information flow and affordable financial services for users and unbanked clients, mobile money propels the process of financial inclusion (Andrianaivo & Kpodar, 2012). This is a technique to fill the gap in the financial infrastructure that exists in developing nations where traditional banking incurs high time and travel costs. In accordance with Wisniewski *et al*. (2021), people who thought currency had a significant risk of spreading viruses opted for cashless alternatives. Those who are financially vulnerable, such as immigrants, the elderly, the unemployed, and the disabled, may also be penalized by COVID 19's quick shift to digital payments. More scientific research will therefore be needed in the future to address this area of concern. Consequently, from the afore literature, this paper seeks to investigate the extent to which GDP and mobile wallet services usage impact each through a causality technique. Its centers on the Pakistan as the study area due to the growing trend of mobile wallet services usage and the growth dynamics with a special interest on pre and post covid periods. This paper emphasizes the societal benefits of digitalization and its importance from a Pakistan perspective.

2. Review of Literature

While several definitions of mobile banking are highlighted by different academics, all definitions concur that using a cell phone to facilitate money transfers and receipts is a key component (Porteous, 2007). In order to perform a variety of tasks, users can build digital wallets using their smartphones (e.g., fund transfer, balance check, repay loans, send, receive remittances, and pay bills and school fees). In 2005–2006, the State Library of Pakistan (SBP) collaborated with international organizations to create a knowledge bank of best practices, which contributed to the development of mobile banking. Easy-peasy, the first mobile banking collaboration, was a one-to-one joint venture between Tameer Microfinance and Telenor Pakistan in 2009. UBL

Omni was introduced in 2010 by United Bank Limited. In order to promote and change financial inclusion, SBP unveiled a strategic framework for sustainable microfinance in 2010. (Rizvi *et al*., 2017). In order to improve the overall quality of the numerous services provided in mobile banking, a financial innovation fund was established in 2011. With the help of SBP and the Asian Development Bank, a national initiative to promote financial literacy was started in 2012. The program aims to educate Pakistanis with low incomes about savings, investing, and mobile banking. 2013 saw too many branchless banking initiatives introduced by Habib Bank Limited. Additionally, it collaborated with NADRA to provide branchless banking services in over 5,500 NADRA e-salat locations (Rizvi *et al*., 2017). By signing an MOU with Meezan Bank and Monet, Warid officially launched the Warid Telecom payment gateway. A mobile financial service called Mobicash was introduced in 2013 by Warid and Bank Alfalah. Easypaisa offers its consumers the ability to transfer money to any bank in Pakistan in 2015. In the same year, it also introduced the golden committee and an e-bazaar, two ground-breaking items. Additionally, in 2015, agent biometric infrastructure implementation got under way. To make purchasing movie tickets easier, PayPal was introduced in 2016. (Rizvi *et al*., 2017). The quick growth of mobile banking suggests that it has the potential to have a substantial effect on a nation's overall economic status. For instance, Kumari & Khanna (2017) found that although adopting digital money is convenient, people in poor nations are hesitant to do so. They argued that if the government educates the public about this method's safety and simplicity while also assuring them of it, it will both boost the GDP and put an end to unethical money handling. In Sri Lanka, Maduwansha *et al*. (2022) asserted that during the COVID-19 epidemic, the use of electronic payment methods dramatically surged, accounting for USD 3.47 B of GDP. Additionally, they recommended that non-developing nations take the required steps by improving the long-term reliability and effectiveness of the electronic payment system after studying quarterly data for the Sri Lankan economy from 2010 to 2020. Encourage people to utilize digital currency by offering rewards, while discouraging the use of traditional currency. Ridwan (2022) talked on the advantages of cashless transactions or electronic payments by emphasizing their efficiency and secure system because they are essential in combating money laundering, kickbacks, and bribery during government sector procurement. In many ways, including by preventing money leaks and making transactions easily available and quick to reconcile, this system can aid in increasing government revenue. As the middle class serves as the foundation of the economy, Hastuti and Jauhari's research from 2021 shows that innovation in information technology has a substantial impact on the global economy, particularly when it comes to south Asian countries' middle classes. Additionally, there are issues with cyber security, proper ICT infrastructure, and slow internet networks with these businesses. Southeast Asian nations have a great deal of potential to boost their economies by facilitating entrepreneurs, creating infrastructure, and opening new doors. The behavior of economic

growth and electronic payments in several global economies was described by Aldaas *et al*. (2021). In several nations, he employed macroeconomic ideas to establish favorable or unfavorable relationships between economic growth and cashless transactions, but he did it without any financial backing. The idea of branchless banking has changed greatly in Pakistan since it was first introduced. Every year saw a number of significant advancements aimed at enhancing the flow of payments for everyone, including businesses and other institutions as well as the general public. According to Rizvi *et al*. (2017), mobile banking raises revenues by reducing the informal economy (e.g., unregistered businesses are evading taxes or not following the norm). Additionally, using mobile banking to transfer money lowers the cost, encouraging more remittances, investments, and saves. With the exception of a few studies, the precise influence of mobile banking on Pakistan's economic progress hasn't been thoroughly examined. The goal of the current study is to determine how mobile banking innovation has impacted Pakistan's economic growth, particularly pre, during and post COVID-19. In addition, it highlights the necessity of digitalization from a Pakistani perspective, particularly for those with low incomes.

3. Method and Materials

3.1 ADF Test is Applied to the Model

The Dickey-Fuller test's testing process is used for the ADF test as well, although the model is used instead.

$$\Delta GDP_t = \alpha + \beta_t + \gamma GDP_{t-1} + \delta \Delta GDP_{t-1} + \cdots + \delta_{\rho-1} \Delta GDP_{t-\rho+1} + \mu_t \quad \text{(1-a)}$$

$$\Delta MWS_t = \alpha + \beta_t + \gamma MWS_{t-1} + \delta \Delta MWS_{t-1} + \cdots + \delta_{\rho-1} \Delta MWS_{t-\rho+1} + \mu_t \quad \text{(1-b)}$$

where α is a constant, β the coefficient on a time trend and ρ the lag order of the autoregressive process. Imposing the constraints $\alpha = 0$ and $\beta = 0$ corresponds to modelling a random walk and using the constraint $\beta = 0$ corresponds to modeling a random walk with a drift.

3.2 Pairwise Granger Causality Test

Granger causality tests, which were first proposed by Granger (1969), look at the pair-wise causal relationship between variables in a model that could result in a one-way, two-way, or no interaction. The following equations can be used to represent the model when used to examine the causality between two variables (MWS and GDP) at time t in time series:

$$MWS_t = \beta_o + \sum_{i=1}^{n} \beta_{1i} MWS_{t-i} + \sum_{i=1}^{n} \beta_{2i} GDP_{t-i} + \mu_{1t} \quad (2)$$

$$GDP_t = \beta_3 + \sum_{i=1}^{n} \beta_{4i} GDP_{t-i} + \sum_{i=1}^{n} \beta_{5i} MWS_{t-i} + \mu_{2t} \quad (3)$$

where the lag's duration is expressed by the variable n, and the variables β and u are, respectively, coefficients and error terms (Granger, 1969; Cosmas *et al*. (2019); Jebli *et al* (2020).

3.3Ordinary Least Square

$$\ln GDP_t = \alpha_o + \beta_1 \ln MWS_t + \mu_t \quad \textbf{(4)}$$

Where GDP is dependent variable with t time lags, MWS is independent variable with t lags, to make the data normal we take log of both variables. Here, α_o is the intercept which shows that if there is no

MWS but GDP will be equals to α_o. β_1 shows that how much GDP will change a unit change in MWS. μ_t is the error term.

3.4 Breusch-Godfrey Serial Correlation LM Test

From the previous equation (4), we can say that the errors might follow an AR(p) autoregressive scheme, as follows:

$$\mu_t = \rho_1 \mu_{t-1} + \rho_2 \mu_{t-2} + \cdots + \rho_p \mu_{t-p} + \varepsilon_t \quad \textbf{(5)}$$

The simple regression model is first fitted by ordinary least squares to obtain a set of sample residuals $\hat{u}_t$. Breusch and Godfrey (1981) proved that, if the following auxiliary regression model is fitted

$$\hat{u}_t = \alpha_o + \alpha_1 X_{t,1} + \alpha_2 X_{t,2} + \rho_1 \hat{u}_{t-1} + \rho_2 \hat{u}_{t-2} + \cdots + \rho_p \hat{u}_{t-p} + \varepsilon_t \quad \textbf{(6)}$$

3.5 Heteroskedasticity Test: Breusch-Pagan-Godfrey

$$\hat{u} = \alpha_o + \alpha_1 X + \gamma \quad \textbf{(7)}$$

$\hat{u}$ in (7) is fitted model from (5). It is chi-squared test which checks the distribution of the t-statistics with degrees of freedom depending on the number of the regressors (X). If the t-statistics has p value lower than the 5% (0.05 critical value) significance level, the null hypothesis of homoskedasticity is rejected and the alternative hypothesis of heteroskedasticity applies. To solve the homoscedastic problem, either a weighted least squares (thus if the source of the problem of heteroskedasticity is known) is preferable, otherwise the heteroskedasticity-consistent standard errors can be employed.

4. Results and Discussion

Data for Pakistan's GDP and mobile wallet services (UPaisa, Mobicash, and Easypaisa) are obtained from 2013 to 2022. To evenly weight the data, log transformation is used. From table 3.1.1, according to Jarque-Bera, neither the GDP of Pakistan nor the mobile wallet services have a normal distribution at the 1% level of significance. Additionally, it is left-tailed and negatively skewed. In comparison to mobile wallet services, the GDP has a mean of 31.12648 and a mean of 23.49958. The standard deviation of Mobile Wallet services is 1.308, which is significantly larger than the standard deviation of GDP, which is 0.1192, hence GDP is not as volatile as Mobile Wallet services.

Table 1: Descriptive statistics

	GDP of Pakistan	Mobile Wallet Services
Mean	31.12648	23.49958
Median	31.14085	23.92970
Maximum	31.29207	24.95967
Minimum	30.93043	21.38669
Std. Dev.	0.119245	1.308461
Skewness	-0.247653	-0.418283
Kurtosis	1.685573	1.628084
Jarque-Bera	9.865234	12.90998
Probability	0.007208	0.001573

In order to investigate more aspects of mobile wallet services, analysis is done using data from the State Bank of Pakistan. It is found that as of July 2018, there were 40 million MWS accounts nationwide with a combined deposit of 340462 million Pakistani rupees in mobile wallets, with a total of roughly 160 thousand agents in the entire nation at that time (Pakistan). The number of MWS accounts increased to 47 million in April 2019 but abruptly fell to 36 million in July 2019 after the Government of Pakistan blocked the unverified accounts. The amount deposited climbed to 807978 million PKR in April 2020, the number of accounts increased to 47 million, and the number of agents working increased to 195 thousand in Pakistan. The number of MWS accounts climbed to 52 million during COVID-19, but the cash deposits did not, reaching 954064 million as the majority of employees lost their jobs, but they opened the accounts as the Government of Pakistan started to pay jobless families. Up until June 2022, 87 million accounts will have raised the amount of cash placed in MWS to 2183408 million, and a network of 320 thousand agents will have been added-up until June 2022, 87 million accounts will have raised the amount of cash placed in MWS to 2183408 million, and a network of 320 thousand agents will have been added. The usage of electronic payment methods rapidly increased during the COVID-19 outbreak, according to Maduwansha *et al*. (2022).

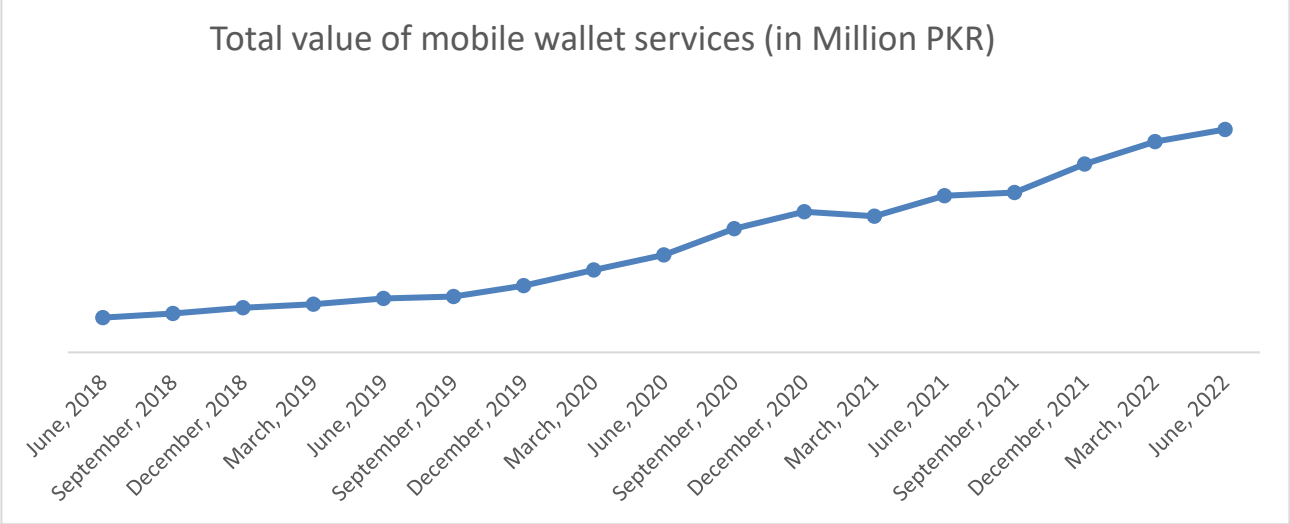

Figure 1: Total value of mobile wallet services (in Million PKR)

Based on figure: 1, we can infer that although there are more accounts, agents, and deposits available, they are primarily used by lower-class Pakistanis who are unable to open bank accounts due to the extensive banking system's formalities. For example, each MWS account cost approximately 8,511 rupees in July 2018 but has since increased to 25,096 rupees per account. This is also on par with Pakistan's current minimum wage. When it comes to the transfer of funds from MWS to MWS and the payment of pensions, 95010 million rupees were transacted through MWS to MWS in July of 2018, and this amount increased to 247144 million in April of 2020 to 2.6 million when the government paid money to jobless head of families as a result of COVID-19. However, it then decreased in the

following quarter. The second installment, which is due in March 2021, will be the government's highest-ever amount at 533610 million. It reached 485932 million as of June 2022, for some reason. Conclusion: From MWS-to-MWS transactions cost just 2,375 rupees in July 2018, and they increased until May 2022, when they reached 5,585 rupees per transaction. However, in March 2021, they had increased to 5,585 rupees per transaction. Therefore, we can conclude that people began to trust on this innovation.

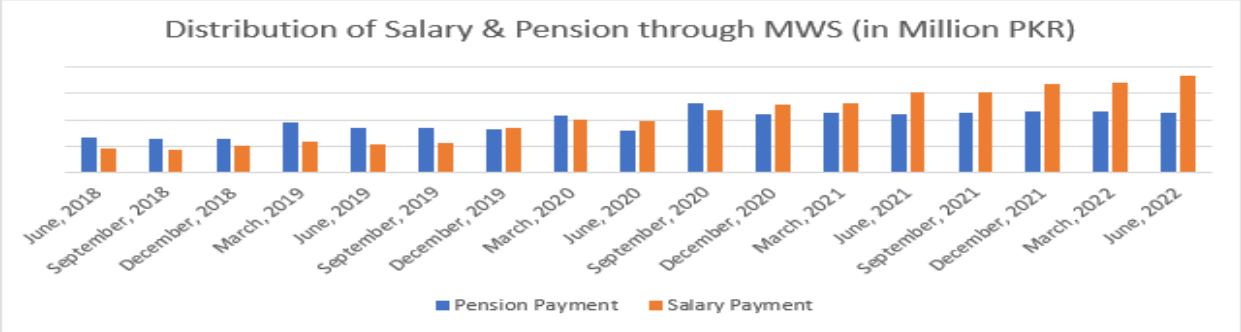

Figure 2: Distribution of Salary & Pension through MWS (in Million PKR)

From the figure: 2, number of pension distribution was recorded 6511 million rupees to 1.6 million persons in July, 2018 which kept increasing to 10809 million to 1.2 million persons in April, 2020 but due to COVID-19 most of the deaths of old persons was recorded so the number of pensioners decreased to 1.19 million till April, 2022 and 11382 million rupees are distributed by using MWS. Salary distribution to the employees is also carried out by many private sector companies by using Mobile Wallet Service, in June, 2018, 4493 million rupees are sent as salary to workers. During pandemic it reached to 10809 million rupees in March 2020 and September, 2020 it was observed as 13136 million rupees as people avoid direct contact and banks also impose restrictions to the customers. Eventually, it gains attention of the employers, because it is convenient and quick way to distribute the salary as well as worker can easily use these applications.

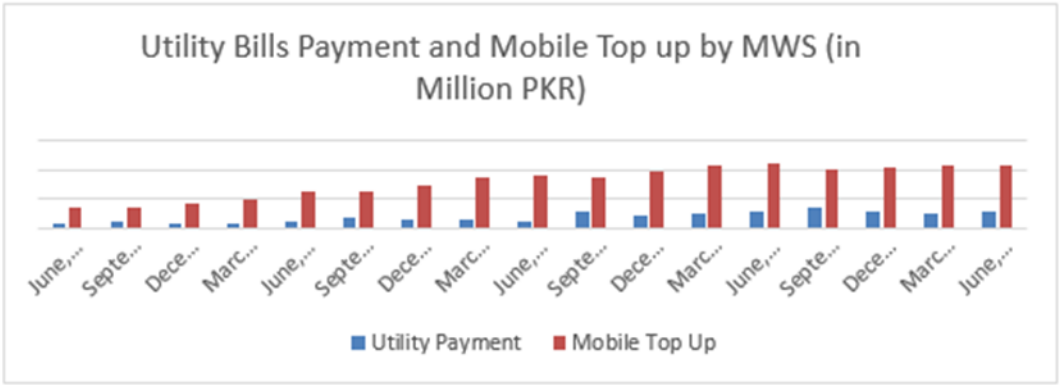

Figure 3: Utility Bills Payment and Mobile Top up by MWS (in Million PKR)

According to figure: 3, the majority of services used by MWS account holders are mobile top-ups and bill payment for the home. In July 2018, 14134 million Pakistani rupees were spent on paying utility bills, compared to 69927 million for purchasing mobile balance or top-ups. The tendency was noted in July 2021, when 70503 million Pakistani rupees were spent on utility bills and 129055 million on mobile top-ups, showing that the trend was rising and that mobile top-ups were now being paid for with 1.9 times more money than utility bills. In that time frame, COVID-19 was once more a significant factor because in June 2022, utility bill deposits fell to 60117 million PKR and mobile top-ups to 2154 million PKR, respectively, but the ratio of spending more on mobile top-ups rose to 3.58 times more than it was in July 2021, which was the low point. While in June 2018 there were 45 million rupees spent on internet billing through MWS, by July 2022 there would be 517 million.

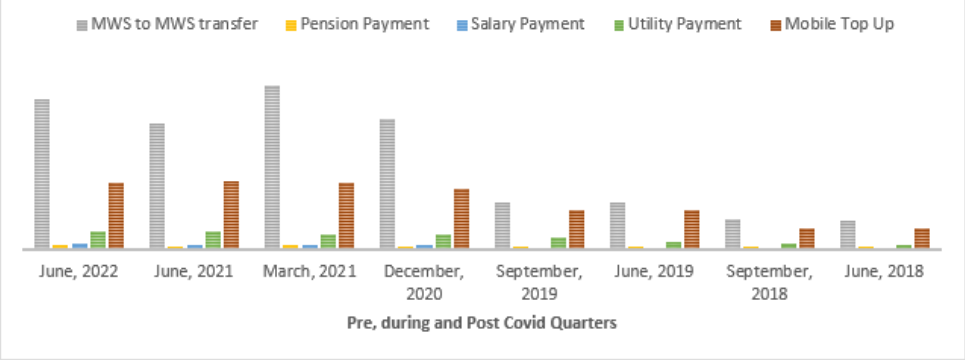

Figure 4: Pre, during and Post Covid spending Behaviour

According to figure: 4, mobile wallet services were primarily used in Pakistan prior to the COVID-19 pandemic for mobile top-ups and the transfer of funds between MWS, but not for salary payments. However, during the COVID-19 pandemic, the use of MWS for money transfers significantly increased as the Pakistani government began sending money to those in need through the MWS and salary and pension payments also began, which continued long after the COVID-19. The public has now come to trust this financial technology, and they use it even while banks are now operating. Yakean *et al*. (2020) also noted this behavior; they found that using cashless payments could stop the COVID-19 virus from propagating. Using the ADF unit root test, we can determine whether or not data are stationary. Our null hypothesis is that the data are not stationary, whereas our alternative hypothesis is that the data are stationary.

Table 2: ADF for GDP of Pakistan

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-0.910006	0.7821
*MacKinnon (1996) one-sided p-values.		

The GDP of Pakistan data is unit root at level because the ADF unit root test cannot reject the null hypothesis based on the critical value. We must therefore execute the ADF at first difference.

Table 3: ADF at first difference for GDP of Pakistan

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-11.47458	0.0000
*MacKinnon (1996) one-sided p-values.		

The unit root test with first difference allows us to reject the null hypothesis of non-stationarity, resulting in the conclusion that Pakistan's Log GDP is stationary at first difference. Therefore, we can use it for more testing. The stationarity of mobile wallet services is now being examined.

Table 4: ADF for Mobile Wallet Services

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-1.181287	0.6810
*MacKinnon (1996) one-sided p-values.		

Mobile Wallet Service data is a unit root at level because the critical value prevents the null hypothesis for the ADF unit root test from being rejected. Therefore, we must execute the ADF at first difference.

Table 5: ADF at first difference for Mobile Wallet Service

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-11.39179	0.0000
*MacKinnon (1996) one-sided p-values.		

MWS is stationary at first difference based on the unit root test with first difference, which rejects the null hypothesis of non-stationarity.

Table 6: Pairwise Granger Causality Tests

	F-Statistic	Prob.*
MWS does not Granger Cause GDP	1.76438	0.0489
GDP does not Granger Cause MWS	0.75267	0.7740

After rendering the data stationary, we perform the Granger causality test to determine whether the mobile wallet service causes the GDP of Pakistan and vice versa. As a result of our rejection of the null hypothesis that MWS does not generally affect GDP, it is clear that there is a causal relationship between mobile wallet service and Pakistan's GDP, but not between GDP and mobile wallet services. When analyzing cashless payments and economic growth in five European nations, Tee *et al*. (2016) confirms that GDP is cause by cashless payments but GDP does not cause the cashless payments in five European nations.

Table 7: Ordinary Least square

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	29.01497	0.032987	879.5998	0.0000
MWS	0.089853	0.001402	64.10972	0.0000
R-squared		0.972091	Mean dependent var	31.12648
S.E. of regression		0.020005	Sum sq resid	0.047225
F-statistic		4110.056	Prob(F-statistic)	0.000000

To confirm the direction of causality, we run simple ordinary least square, which shows that MWS is significant at 1 % level of significance with a T-statistic value of 64.10972. This means that a percentage increase in MWS will results into 8.9% increase in GDP. The same results, which demonstrate a significant positive relationship between e-payment systems and GDP per capita, are demonstrated by Oyewole *et al* (2013). However, according to Tee *et al*. (2016), any regulation that encourages cashless transactions won't have an immediate impact on the economy.

Table 8: Breusch-Godfrey Serial Correlation LM Test

F-statistic	317.4576	Prob. F(2,116)	0.0000
Obs*R-squared	101.4626	Prob. Chi-Square(2)	0.0000

The serial auto correlation test shows that GDP and MWS are not serially correlated. There is no auto correlation problem with this data. In order to determine the autocorrelation between economic growth and cashless payments in Nigeria, A Gbanador, M. (2023) also applied the Breusch-Godfrey Serial correlation LM Test. He observed that there is no auto correlation.

Table 9: Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	40.97908	Prob. F(1,118)	0.0000
Obs*R-squared	30.93168	Prob. Chi-Square(1)	0.0000
Scaled explained SS	17.49472	Prob. Chi-Square(1)	0.0000

Breusch-pagan-Godfrey test for Heteroskedasticity shows that GDP and MWS are not homoscedastic. So, there is no homogeneity problem. A Gbanador, M. (2023) also used the Breusch-Pagan-Godfrey heteroskedasticity test to ascertain heteroskedasticity and discovered that there is no issue with variables (economic Growth and cashless payment in Nigeria) homogeneity.

5. Conclusion

The paper was intended to investigate causal relationship between mobile wallet services and GDP of Pakistan pre and post COVID-19 Pandemic. There is evidence that the usage of electronic payment methods rapidly increased during the COVID-19 outbreak, according to Maduwansha *et al*. (2022). Our results shows that MWS is significant and has a positive relationship with GDP of Pakistan. Evidently, MWS usage has seen a rise

especially between 2020 and 2021. This partly due to the social intervention policies implemented by the government during the pandemic periods. However, prior to this the MWS usage was low as shown afore in figure: 1.The increase in usage suggests that spending electronically has increased and this provides the government with enough incentive to mobilize taxes through electronic means. With respect to causality movement, the results show that there is unidirectional movement from MWS to GDP. This suggests that economic activities are being stimulated electronically during the pandemic period where conventional economics activities are halted. In line with the results of Kumari & Khanna (2017) our results suggests that more financial transactions and trade are being done using this service which the keeps the economy alive. Additionally, it also expands financial inclusion which translates to an increase in economic activities. Particularly, those with low incomes who are not able to use the traditional banking system are enrolled into banking through MSW. It is becoming more and more popular with the populace because to its simple operation, ease of fund transfer, and lack of expensive taxes. Additionally, it prevents the movement of illicit funds or fraudulent activity in the financial sector.

6. Recommendations

Based on the findings from the study the following recommendations are made to Pakistan's financial industry players, government and private sector: -

- There should be more government and private sector of Pakistan involvement in payments to support Mobile Wallet Services.
- Government of Pakistan should enact legislation to lessen fraud and scams, and MWS providers may enhance their security mechanism to win over MWS users.

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