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E-Payment Methods and E-Commerce Growth in Uganda: Evidence from Kampala - Uganda's Central Business District

Kasenge Martin[1], Arthur Butime[2]
Uganda Martyrs University, Nkozi, Uganda[1]
Easternand Southern African Management Institute, Arusha, Tanzania[2]
mkasenge@umu.ac.ug[1]

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Abstract
Purpose: The study assessed the effect of e-payment methods on the growth of e-commerce in Uganda, specifically focusing on the impact of e-wallets/e-cash, debit/credit cards, and money transfer services on e-commerce growth in Kampala.
Research/methodology: A cross-sectional design was used with a sample of 384 participants. Data were collected through structured questionnaires, cleaned, organized, and analyzed using SPSS, employing correlation and regression models for inferential analysis.
Results: The study found that e-payment methods, including debit/credit cards, money transfer services, and e-wallets/e-cash, positively and significantly associate with e-commerce growth. However, while debit/credit cards and money transfer services significantly predict e-commerce growth, e-wallets/e-cash have a positive but insignificant effect. Overall, e-payment methods account for 33.1% of the variation in e-commerce growth.
Conclusions: E-payment methods, especially debit/credit cards and money transfer services, significantly contribute to e-commerce growth in Kampala. E-wallets show a positive but insignificant effect. To achieve sustainable impact, further support is needed for e-payment adoption.
Limitations: The study focused on a limited range of e-payment methods, excluding others used in the sector, which affects generalizability. Additionally, only Kampala was studied, though other regions in Uganda also engage with e-payment systems. Kampala, as the central business hub, is a key area for innovations that spread to other cities.
Contribution:. E-payment systems significantly predict e-commerce growth. Key e-commerce players should encourage the use of e-payments to foster trade growth, as their adoption will help stimulate e-commerce activity.

Keywords: *E-commerce Growth, E-payments Systems, Developing Economies, Digital Payment Adoption*

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1. Introduction

The global pandemic of COVID - 19 saw an increase in digital adaptation and usage, especially through online shopping (Xiang, 2021). Equally, the pandemic resulted in drastic changes in consumer behavior when consumers shifted their focus towards acquiring long-lasting assets as opposed to short-lived items, and there was a decline in consumer spending owing to a high degree of uncertainty that surrounded employment and augmented means of livelihood (Xiang, 2021). E- Commerce entails the production, marketing, sale, and delivery of goods or services electronically through the next users

(Turban, King, Lee, Liang, & Turban, 2015). Accordingly, E– Commerce has undoubtedly had a bigger impact on global trade (Xiang, 2021). E-commerce platforms promote business-to-business (B2B), business-to-customer (B2C), and customer-to-customer (C2C) trade flows. Facts indicate that World trade powerhouses, such as the USA, the People's Republic of China, Great Britain, and Japan, earn trillions of dollars through these engagements (Broome, 2016; Xiang, 2021). B2B implies a practice of selling goods online from one business to another, while B2C is an online practice where businesses display their products and services online and allow customers to place orders at their convenience, thereby saving both time and travel inconvenience. According to C2C, customers are in a position to upload products and sell them to other customers interested in the commodity.

Whereas e – commerce has been a success in most of the Western economies especially in Europe, Great Britain, USA, Canada, China, Japan and United Arab Emirates among others with notable trade volumes over the years, e – commerce remains under developed in most of the African countries (Adam, Alhassan, & Afriyie, 2020). While the continent registered an average growth of 18% in online shopping, surpassing the global average of 12% between 2016 and 2020, the key contributors to this growth were Kenya, Nigeria, South Africa, and Ghana, with the rest of the countries struggling to make a cut in online trade (Amofah & Chai, 2022).

In the East African Community, e-commerce is largely dominated by Kenya, while elsewhere it is underdeveloped as the population remains glued to physical interactions between dealers and consumers (Albashrawi, 2021). For example, in 2020/2021, the e – commerce market in Kenya recorded a net growth of 66% compared to the global average of 26%. However, other countries in the region have performed poorly (Albashrawi, 2021; Amofah & Chai, 2022). Notable challenges, such as delayed deliveries, low trust, network failures, and binding legislation, have been cited as barriers to the growth of e–commerce in most African economies (Adam et al., 2020). For example, Høgevold, Rodriguez, Svensson, and Roberts-Lombard (2022) assessed the proposed relationships in a model via a host of settings in which satisfaction mediated between quality constructs in a seller – customer setting across the B2B markets. The study adopted an exploratory design on a sample of 523participants data from whom were collected through questionnaires and processed using SPSS. The results indicate that trust and commitment increase customers' participation and use of B2B platforms to procure goods, and that the key to success is delivering customer orders to create satisfaction. The results imply that for a business to achieve its objectives via the e-commerce model, trust and commitment to serving orders placed should prevail all the time. These, in turn, build confidence and foster transformations in e-commerce.

However, technological advancements have powered business communities and firms, as well as the entire world, to embrace digital payment solutions, thus launching a revolution for cashless business transactions (Adam et al., 2020). Lightly started out at banks, where sums of funds could be transferred from one account to another within the same bank, and later grew to facilitate interbank transfers. Today, banks have rolled out e – wallets, e – cash, mobile banking, and augmented features, as well as the issuance of both credit and debit cards (Amofah & Chai, 2022). Thus, in addition to the traditional Western Union (WU) funds transfer system, modern funds transfer solutions with modifications from WU have been developed and rolled out. These include world remit, union pay post, and pay pal, among others (Oyelami, Adebiyi, and Adekunle (2020), which make fund movements materialize in real time (Ghosh, 2021; Oyelami et al., 2020). However, even with the growth in the number of e-payment methods and solutions routed in e-payment systems aimed at facilitating growth in e – commerce, this mode of trade in Uganda remains largely underdeveloped. This lacuna compelled the researchers to question whether the current low trends in e-commerce in Uganda could be due to the inadequacies of e – payment systems and hence the current study.

1.2 Statement of the Problem

The advent of technology, increasing globalization, and ever-increasing customer sophistication, among other catalysts, are believed to support and promote online business activity and hence propel the growth of e – commerce (Adam et al., 2020). Accordingly, e-commerce is believed to be a prime ingredient in promoting global trade because it introduces the world to unlimited varieties of products through the

Internet (Høgevold et al., 2022). To support and promote e – commerce, e – payment systems such as e – wallets, mobile banking, mobile money, issuance of both debit and credit cards, world remit, union pay, and e-cash, among others, have been developed through innovation with the intent of improving fund transfers and payments across the globe and to the respective parties to transactions (Ghosh, 2021). These payment systems are meant to increase convenience while lowering operating/transaction costs, and hence foster the growth of trade. It would also propel the linkage of local businesses with international markets. Despite the development of such systems, e – commerce in Uganda is developing at a snail's pace. For example, while Kenya registered a 66% annual growth in e-commerce over the period 2018 – 2021, Uganda managed only 13% growth in the same period (Amofah & Chai, 2022).

The meagre level of growth of e–commerce in the country amidst e–payment innovations brings to the fore important questions such as the enabling factors for the success of e–commerce. How do e–wallets/e-cash promote the growth of e–commerce in Uganda? What is the effect of debit/credit cards on the growth of e–commerce in Uganda? How do money transfer services affect the growth of e-commerce in Uganda? Therefore, these questions formed the foundation for the current study, with the intent of examining the effect of electronic payment methods on the growth of electronic commerce in Uganda.

1.3 Purpose of the study

The purpose of the study was to assess the effect of e - payment methods on the growth of e – commerce in Uganda

1.4 Objectives of the Study

1. To examine the effect of e – wallets/e – cash on growth of e – commerce in Kampala
2. To assess the contribution of debit/credit cards on the growth of e – commerce in Kampala
3. To examine the effect of money transfer services on growth of e – commerce in Kampala

2. Literature Review

2.1 E–wallets/e–cash and Growth of E-Commerce

Li et al. (2023) studied the impact of mobile payments rooted in e–wallets on the growth of e – commerce in China. They concluded that e-wallets were instrumental in propelling the growth and penetration of e – commerce in China, adding that the net contribution grew larger with the adoption of this payment mode by small-sized entities and with continued advocacy for digitalization. A similar study by Kadaba, Aithal, and KRS (2023) through a longitudinal design on how e–wallets impacted the growth of e – commerce in selected provinces of India averred that the usage of e–wallets as a payment method significantly and positively predicted the growth of e-commerce, adding that the method stood out in enabling the growth of online trade activity with relatively small-sized retail stores than it did for large corporations. Furthermore, Lee, Gan, and Liew (2022) studied the effect of e-wallets on online purchasing behavior among Malaysian customers and concluded that e-wallet usage triggered the buying behavior of customers and positively improved sales volumes since they proved to be relatively convenient and were hardly threatened by security attacks.

A similar study by Alnsour (2022) investigated how e – wallets as a payment method affected e – commerce growth in developing countries. Researchers concluded that the use of e – wallets as a payment methodology positively catalyzed e – commerce growth and was predominant with SMEs, where smaller transaction volumes were common and less risk was presumed. In their study, Oyelami et al. (2020) explored the factors for the adoption of electronic payments, focusing on the key roles that e – payments had on purchase decisions by consumers and how e – payments informed consumer spending growth. Pegged on a cross-sectional design on a sample of 420 participants, the study established a positive significant association between e-payment influencers and adoption of the systems and that e-payment tenets significantly predict adoption of the system and this propelled consumer spending growth. Thus, with factors for the full adoption of e-payment systems, consumer spending grows, which in turn stimulates the populace to participate more in e – commerce. In a nutshell, e-wallets as a method of payment enable customers to continue to experience convenient shopping at a

relatively lower cost, yet their work schedules remain uninterrupted, which in turn propels e – commerce growth.

2.2 Debit and Credit Cards and e–commerce growth

Aldaas (2021) focused on how credit and debit cards as a payment method impact e – commerce growth in Turkey and established that e – payments rooted in debit and credit cards were instrumental in accelerating the growth of online trade and that these payment methods positively predicted e – commerce growth. However, this impact was mediated by perceived usefulness and perceived ease of use. Similarly, Mishra (2023) explored how the adoption and use of debit cards impacted e – commerce growth, focusing on the Indian Business Community of New Delhi. The results indicate that the adoption of debit cards as payment systems harnesses the growth of online trade activity, and that the usage of debit cards positively and significantly impacts the growth of e – commerce. However, the impact grew significantly with relatively smaller-sized business enterprises that embraced e-commerce as a mode of operation to reach clients.

Furthermore, Lim et al. (2022) examined how credit cards affect online purchase behavior, with a particular focus on South Korea. The study, through a survey design, concluded that credit card adoption catalyzed e – commerce growth by shaping the behavior of buyers and that growth in online trade increased with declining risks as well as an improvement in ease of use and perceived usefulness. Another study by Hoang and Vu (2020) investigated how the adoption of credit cards influenced e – commerce in Vietnam. Adopting a mixed methods approach and a sample of 433 SMEs, they concluded that the adoption of credit cards as a method of electronic payment stimulated e –commerce growth. Other facts were that the key factors for adoption rotated around the level of consumer income, the attained education level of the consumer/user, and perceived trust in online trade engagements.

Oyelami et al. (2020) studied the factors for the adoption of electronic payments, focusing on the key roles that e – payments had on purchase decisions by consumers and how e – payments informed consumer spending growth. Pegged on a cross-sectional design on a sample of 420 participants (bank customers), the study established a positive significant association between e – payments, influencers, and adoption of the systems and that e-payment tenets significantly predict adoption of the system, which propelled consumer spending growth. Thus, with the full adoption of e-payment systems, consumer spending grows, which is believed to stimulate the populace to participate more in e – commerce. Accordingly, Oney, Guven, and Rizvi (2017) set out to design a conceptual model that would best examine the determinants of perceived security and trust and how these influence the usage of e – payment systems. Guided by a survey design on a sample of 299 participants, the study established that perceived security and trust positively and significantly predicted the usage of e – payment systems. These studies thus shed light on how electronic payments can be improved to stimulate the uptake of payment models and hence catalyze their usage in e – commerce, thereby promoting online trade.

2.3 Money transfer Services and Growth of E-Commerce

Coffie, Nunoo, Karakara, Opoku, and Boahen (2024) examined how mobile money transfer services facilitated the growth of e – commerce in both Kenya and Tanzania and established that money transfer services, especially those that are mobile, enabled by phone technology, boosted e – commerce growth across Kenya and Tanzania. Another study by Kotei-Sass (2019) examined the interrelationships between mobile money transfers and the growth of e – commerce in Accra, Ghana. Guided by a correlational design covering a sample of 344 SMEs that used mobile transfers as a means of payment, the results indicated that mobile money transfer services were positively and significantly related to e – commerce growth and that most SMEs and individual business establishments found it easy and convenient to trade with online platforms that are linked with mobile money payment systems of augmented service providers. Ahmed et al.Ahmed, Ahmad, and Abid (2024) examined the impact of online payment solutions on e-commerce in Jakarta, Indonesia. The longitudinal study synthesized secondary data on e-commerce volumes and online payment solutions for the period 2015 – 2020, with results pointing to the fact that payment systems powered by online technology positively predict the growth of e – commerce, especially in SMEs that trade online. A similar study by (Ahmed et al. (2023)

examined how mobile money payments catalyzed financial inclusion on one hand and e – commerce growth on the other hand, and established that mobile money as a payment system offered flexibility and convenience to users and enabled t exec et al. (h ease of use to a host of traders.

Furthermore, Datsko (2019) examined the key challenges of electronic coappearing in the fashion industry. Premised on the BUMMAT model with the intent of analyzing the level of business performance and also drawing a line between the participants as well as underpinning the core roles and the actions of the end users, the study established niching, trust, public confidence, technology acceptance, and tailored feedback as the sought-after factors for fostering the success of the e – commerce model. However, changing trends, increasing customer sophistication, Internet fraud, the absence of a direct customer - business interface, and inadequate real – time interactions between parties have affected the potential of e – commerce to achieve its intended objectives. Another study by Rao, Vihari, and Jabeen (2021) offered a critical look at the business strategies that were deemed ideal for fashion retailers to extend integrated online business and service solutions after COVID - 19. This study underscores the relevance of developing innovative and tailored strategies to address the increasing sophistication of customers in the fashion industry. Moreover, the time has come for fashion firms, especially those that the end users (retailers) to intensify on technological use, adopt to social media usage, as well as adaptive marketing strategies to salvage the increasing changes in customer buying patterns.

2.4 Literature Gap

A snapshot of the reviewed literature indicates that a lot has been done in the field of electronic payments, the developments in e – commerce, the trends in online trade, as well as the existing challenges and barriers that might limit the successful implementation of e – payment systems to achieve market success in online trade. However, there appear to be limited studies in developing countries, as most studies on the effect of e-payment systems and the growth of e-commerce have been conducted in developed countries. Therefore, more studies are needed in developing countries where e-commerce is still in its early stages. Empirical evidence from Indonesia confirms that e-commerce transaction growth and R&D investment contribute significantly to national economic growth, reinforcing the importance of digital payment development in emerging markets (Wahyudi & Sumahir, 2020). Accordingly, nothing is static, and the business community ought to be rational at all times so that they can salvage competition and remain affluent. Aware of the above facts, the current study examines the effect of e – payment systems on the growth of e-commerce in Uganda.

3. Research Methodology

3.1 Study design

Given the nature of the inquiry undertaken, the study utilized a cross-sectional design to obtain primary data on both the adoption of electronic payment systems and the growth of e – commerce from the defined sample size. This study used purely quantitative data. A set of self-administered questionnaires covering both e – commerce facets on one hand and payment system parameters on the other hand was designed and used to collect quantitative primary data from the selected e– commerce customers and e-payment system users.

3.2 Population, Sampling Procedure and Sample size

The target population for this study was both prospective and existing e-commerce customers, as well as those providing services for e – payment systems. These include B2B and B2C customers, telecom service providers, commercial banks, money transfer services, and the Bank of Uganda as a regulator. Probability sampling using the cluster method was the most appropriate method for determining the sample size. Thus, since the population was unknown, the sample size was determined using the formula below (Fletcher, Fletcher, & Fletcher, 2012).

$$n = \frac{Z_{\alpha}^{2}(p)(q)}{\varepsilon^{2}}$$

where *n* is the number of individuals; *p* is the estimated proportion; q is 1-p ; Z is the α quintile of the standard normal distribution, with $Z_{\alpha} = 1.96$ when a 95% confidence interval is requested; ε is the relative margin of error expected (Fletcher et al., 2012). Since the population is large and unknown and we do not know its variability in adoption, we assumed maximum variability and took p = 0.5. This implies that 1 – p = q also equals 0.5 (Charan & Biswas, 2013).

Therefore: $$n = \frac{(1.96)^2(0.5)(0.5)}{(0.05)^2} = 384.16 \approx 384$$

This formula yielded a sample size of 384 participants for the entire exercise.

3.3 Data Collection sources

This study collected both primary and secondary data. Secondary data were obtained from the annual reports of the Ministry of Trade and Industry, Bank Uganda reports on payment systems, sales databases, and e-commerce platforms of leading e-commerce firms in Uganda. This was generally achieved through a literature review. On the other hand, primary data was collected from the defined sample size using appropriate tools. This came from various e-payment system service providers, selected telecom companies, and selected online trading firms.

3.4 Data processing and analysis

The collected data were coded in MS Excel and exported to the Statistical Package for Social Scientists (SPSS) for processing. Karl Pearson's two tail correlation coefficient was run for establishment of the relationship between the e – payment systems and growth of e - commerce while multiple linear regression was utilized in predicting e – commerce growth from e – payment systems. Accordingly, the interview data were transcribed and grouped into themes, after which content analysis was employed to make sense of the qualitative data and integrate them into the quantitative data gathered. From this analysis, conclusions were drawn and recommendations were suggested.

4. Results and Discussions

4.1 *Results*

The researchers performed correlations to examine the interrelationships between the study variables. Thus, Karl Pearson's two-tail test statistic was employed to examine the said relationships at a 99% level of confidence. In interpreting the correlations, a scale of - $1 \leq r \leq +1$ was adopted, where $-1 \leq r \leq 0$ represents negative relationships and $0 \leq r \leq +1$ represents positive relationships. Furthermore, $r = 0$ represents no relationship, $r > 0.5$ implies a strong positive relationship, and $0 < r < 0.5$ represents a weak positive relationship. On the other hand, $r < -0.5$ represents a strong negative relationship, while $0 > r > -0.5$ represents a weak negative relationship. After the statistical process, the results in Table 1 were generated.

Table 1. Correlations between Variables

		Debit/Credit Cards	Money Transfer Services	E – wallets/E - Cash	Growth of E-Commerce
Debit/Credit Cards	Pearson Correlation	1	.736**	.838**	.549**
	Sig. (2-tailed)		.000	.000	.000
	N	359	359	359	359
Money Transfer Services	Pearson Correlation	.736**	1	.756**	.541**
	Sig. (2-tailed)	.000		.000	.000
	N	359	359	359	359
E – wallets/E - Cash	Pearson Correlation	.838**	.756**	1	.426**
	Sig. (2-tailed)	.000	.000		.001

	N	359	359	359	359
Growth of E-Commerce	Pearson Correlation	.549**	.541**	.426**	1
	Sig. (2-tailed)	.000	.000	.001	
	N	359	359	359	359

Source: Field Data (2024)

4.1.1 Correlations between Debit/Credit Cards and Growth of E-Commerce

The results presented in Table 1 indicate that the adoption and use of debit and credit cards as a mode of payment for online trade is positively associated with growth in e-commerce, given a correlation index of r = .549**; p<0.01. This implies that every time the conditions for accessing and using credit and debit card services as a means of payment change positively by one unit, e–commerce grows by 0.549. This revelation could probably be premised on the fact that cardholders do not require physical supportive infrastructure to transact as well as the fact that the cards allow for direct currency conversions globally. Further, it could be attributed to the cards being secure, which promotes confidence among the holders that their funds are secure all the time, as well as the fact that a dispute handling unit is in place to attend to any concerns of card holders in a short time. Thus, these and other benefits, as well as enabling factors, combine to foster growth in e-commerce.

4.1.2 Correlations between Money Transfer Services and Growth of E-Commerce

The results presented in Table 1 indicate that the adoption and use of money transfer services as a mode of payment for online trade are positively associated with growth in e-commerce, given a correlation index of r = .541**; p<0.01. This implies that every time the conditions for accessing and using money transfer services as a means of payment change positively by one unit, e – commerce grows by 0.541. This relationship could probably be hinged on the fact that the process of transferring funds to defined beneficiaries across the globe is swift, as well as the fact that the process of transferring funds to identified beneficiaries globally is safe and reliable. Furthermore, the positive relationship could be attributed to the fact that money transfer service operations offer confidence to customers that their money will reach the specified destination in real time, as well as the fact that clients can choose from a variety of players available in the market. Thus, by using money transfer services such as Western Union, World Remit, MoneyGram, and Union Pay post, among others, customers are confident about the system and hence use it to engage in online trade, which eventually translates into the growth of e-commerce.

4.1.3 Correlations between E-Wallets/E-Cash and Growth of E - Commerce

The results presented in Table 1 indicate that the adoption and use of e-wallets/e-cash as a mode of payment for online trade is positively associated with growth in e-commerce, given a correlation index of r = .426**; p<0.01. This implies that every time the conditions for accessing and using e-wallets/e-cash as a means of payment change positively by one unit, e – commerce grows by 0.426. This relationship could probably be hinged on the fact that e-wallet clients can benefit from interswitch services from different providers aimed at improving customer experience and the fact that e-wallets promote ease of access to funds and allow timely processing of transactions. Furthermore, it could be premised on the fact that e-wallets enable holders to procure a variety of goods and services conveniently and that E - wallets are secure and promote confidence among the holders that their funds are secure all the time. Thus, the adoption and usage of E – cash/E-wallets as a means of payment for online trade fosters the growth of e – commerce.

4.2 *Regression Analysis for the effect of E-Payment Systems on Growth of E-Commerce*

With the relationships between the variables established, the researchers performed multiple linear regressions to establish the effect of the independent variable on the dependent variable. Further, the same technique was employed to examine how the individual tents of e-payment systems affected the growth of E - Commerce. The results are presented below.

Table 2. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.605[a]	.366	.331	.31148

a. Predictors: (Constant), Debit/Credit Cards, Money Transfer Services, E-Wallets/E-Cash

Source: Field Data (2024)

The results presented in Table 2 indicate that, overall, e-payment systems account for 33.1% (Adjusted R2 = .331) of the positive variation in the growth of e-commerce, while other factors that were not covered by this probably explain the remaining 66.9% of the positive variation in the growth of e – commerce in Kampala. The results imply that e-payment systems positively predict growth in e-commerce. This could be attributed to the fact that cardholders do not require physical supportive infrastructure to transact, as well as the fact that the cards allow for direct currency conversions globally. This could also be attributed to the fact that the process of transferring funds to defined beneficiaries across the globe is swift, as well as the fact that the process of transferring funds to identified beneficiaries globally is safe and reliable. Similarly, it could be premised on the fact that e-wallet clients can benefit from interswitch services from different providers aimed at improving customer experience and the fact that E – wae-walletomote ease of access to funds and allow timely processing of transactions. The researcher generated regression coefficients to measure the individual contribution of the dimensions of e-payment systems on e – commerce and obtained the results in Table 3 below.

Table 3. Regression Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.556	.351		7.287	.000
	Debit/Credit Cards	.372	.149	.514	2.501	.005
	Money Transfer Services,	.289	.127	.389	2.274	.002
	E -Wallets/E-Cash	.235	.167	.300	1.411	.164

a. Dependent Variable: Growth of E-Commerce

Source: Field Data (2024)

The results presented in Table 3 indicate that all the examined tenets of e-payment systems positively predict the growth of e – commerce. Here, debit/credit cards explain 51.4% (Beta = .514) of the positive variation in the growth of e – commerce, while money transfer services account for 38.9% (Beta = .389) of the positive variation in e – commerce. On the other hand, e – wallets/e – cash explains 30 %(Beta = .300) of the positive variation in the growth of e –commerce. The results imply that a unit positive improvement in conditions for accessing, adopting, and using debit and credit cards results in a.514 positive improvement in the growth of e – commerce, while a unit positive improvement in conditions of access and use of money transfer services yields a.389 positive improvement in the growth of e – commerce. Furthermore, a unit positive improvement in the conditions of accessing, adopting, and using e-wallets/e-cash yields a positive improvement of.3 in the growth of e – commerce. However, based on the significance levels, the results indicate that only debit and credit cards as well as money transfer services are significant predictors of growth in e –commerce trade, while e-wallets/e-cash insignificantly predict e-commerce growth.

The positive contribution of 51.4% that debit/credit cards have on e – commerce growth could probably be attributed to the fact that cardholders do not require physical supportive infrastructure to transact as well as the fact that the cards allow for direct currency conversions globally. Thus, these and other benefits, as well as enabling factors, combine to foster growth in e-commerce. Further still, a positive contribution of 38.9% that money transfer services have on e – commerce growth could be attributed to the fact that the process of transferring funds to defined beneficiaries across the globe is swift as well as the fact that the process of transferring funds to identified beneficiaries globally is safe and reliable. Thus, by using money transfer services such as Western Union, World Remit, MoneyGram, and Union Pay post, among others, customers are confident about the system and hence use it to engage in online trade, which eventually translates into the growth of e-commerce.

4.3 *Discussion of Findings*

4.3.1 Correlations between Debit/Credit Cards and Growth of E-Commerce

The findings based on the main objective (purpose of the study) are that e-payment systems explain 33.1% of the positive variation in the growth of e-commerce, while the remaining 66.9% is due to other factors. This implies that e – payment systems are positive, although weak, in explaining e-commerce growth. This could be attributed to the fact that cardholders do not require physical supportive infrastructure to transact, as well as the fact that the cards allow for direct currency conversions globally. This could also be attributed to the fact that the process of transferring funds to defined beneficiaries across the globe is swift, as well as the fact that the process of transferring funds to identified beneficiaries globally is safe and reliable. Similarly, it could be premised on the fact that e-wallet clients can benefit from interswitch services from different providers aimed at improving customer experience and the fact that E – wallets promote ease of access to funds and allow timely processing of transactions.

The results are consistent with Kadaba et al. (2023), who found that e-payment methods were instrumental in propelling the growth and penetration of e – commerce and that the net contribution grew larger with the adoption of the mode of payment by small-sized entities and with continued advocacy for digitalization. The findings are also consistent with Li et al. (2023), who submitted that the usage of e –payment significantly and positively predicted the growth of e-commerce, adding that the method stood out in enabling the growth of online trade activity with relatively small-sized retail stores than it did for large corporations. The findings are also consistent with Mishra (2023), who found that the adoption of e-payment systems harnesses the growth of online trade activity, and that the usage of debit cards positively and significantly impacts the growth of commerce. However, the impact grew significantly with relatively smaller-sized business enterprises that embraced e-commerce as a mode of operation to reach clients. The same position was achieved by Kotei-Sass (2019), who found that mobile money transfer services are positively and significantly related to e – commerce growth and that most SMEs and individual business establishments found it easy and convenient to trade on online platforms that are linked with mobile money payment systems of augmented service providers. Therefore, based on the discussions, the researcher maintains that e-payment systems positively predict growth in e-commerce.

4.3.2 Debit/Credit cards and Growth of E-commerce

The main findings under this objective are that debit/credit cards explain 51.4% of the positive variation in the growth of e-commerce. Other findings include a positive significant association between debit/credit cards and the growth of e-commerce ($r = .549$; $p<0.01$). This implies that debit/credit cards are significant positive predictors of e-commerce growth. This revelation could probably be premised on the fact that cardholders do not require physical supportive infrastructure to transact as well as the fact that the cards allow for direct currency conversions globally. Further, it could be attributed to the cards being secure, which promotes confidence among the holders that their funds are secure all the time. The results are consistent with Aldaas (2021), who concluded that e – payments rooted in debit and credit cards were instrumental in accelerating the growth of online trade and that these payment methods positively predicted e – commerce growth. However, this impact was mediated by perceived usefulness and perceived ease of use. Furthermore, the results are in line with Mishra (2023), who submitted that the adoption of debit cards as payment systems harnesses the growth of online trade activity, adding that the usage of debit cards positively and significantly impacted the growth of e – commerce.

However, the impact grew significantly with relatively smaller-sized business enterprises that embraced e-commerce as a mode of operation to reach clients. A similar conclusion was reached by Lim et al. (& Liu, 2022) submitted that credit card adoption catalyzed e – commerce growth by shaping the behavior of buyers and that growth in online trade increased with declining risks as well as an improvement in ease of use and perceived usefulness. The findings are consistent with Hoang and Vu (2020), who found that the adoption of credit cards as a method of electronic payment stimulated e –commerce growth and that key factors for adoption rotated around the level of consumer income, the attained education level of the consumer/user, and perceived trust in online trade engagements. Similarly, Oyelami et al. (2020) opine that a positive significant association exists between e – payments, influencers, and adoption of

the systems and that e-payment tenets significantly predict adoption of the system, which propels consumer spending growth. Thus, with factors for the full adoption of e-payment systems, consumer spending grows, which is believed to stimulate the populace to participate more in e – commerce. Therefore, based on the discussion, the researcher holds that debit/credit cards are positive significant predictors of growth in e-commerce.

4.3.3 Money Transfer Services and Growth of E-commerce

Key findings under this objective are a positive significant contribution of 38.9% that money transfer services have on the growth of e-commerce. Other results show that money transfer services are positively and significantly associated with growth in commerce, as indicated by a correlation index of $r = .541$; $p<0.01$. This implies that every time the conditions for accessing and using money transfer services as a means of payment change positively by one unit, e – commerce grows by 0.389. This could probably be due to the fact that the process of transferring funds to defined beneficiaries across the globe is swift, as well as the fact that the process of transferring funds to identified beneficiaries globally is safe and reliable. The results concur with Kotei-Sass (2019), who found that mobile money transfer services are positively and significantly related to e – commerce growth and that most SMEs and individual business establishments found it easy and convenient to trade on online platforms that are linked with mobile money payment systems of augmented service providers.

A similar position is held by Ahmed et al. (2024), who concluded that payment systems powered by online technology positively predict the growth of e – commerce, especially in SMEs that trade online. Study findings are equally consistent with (Ahmed, Green, Jiang, & Murinde, 2023) arguing that mobile money as a payment system offered flexibility and convenience to the payer and enabled to execute payments with ease while at the same time it appeared easy to use to a host of online traders. Furthermore, Datsko (2019) opines that niching, trust, public confidence, technology acceptance, and tailored feedback are the sought-after factors for fostering the success of the e – commerce model. However, changing trends, increasing customer sophistication, Internet fraud, the absence of a direct customer - business interface, and inadequate real – time interactions between parties have affected the potential of e – commerce to achieve its intended objectives. Therefore, going by the ongoing discussions, the researcher maintains that money transfer services as a means of executing payments positively and significantly predict the growth of e – commerce given the augmented support and convenience it offers to online traders.

4.3.4 E–Wallets/E-Cash and Growth of E-commerce

The main results under this objective are that e-wallets/e-cash positively and insignificantly predict 30% of the positive variation in the growth of e-commerce. Other results are a positive association between e-wallets/e-cash and growth in e-commerce, indicated by a correlation index of $r = .426$; $p<0.01$. This relationship could probably be hinged on the fact that E-Wallet clients can benefit from interswitch services from different providers aimed at improving customer experience and the fact that E – wallets promote ease of access to funds and allow timely processing of transactions. These findings are in line with those of Sun et al. (2021), who concluded that e-wallets were instrumental in propelling the growth and penetration of e – commerce, adding that the net contribution grew larger with the adoption of the mode of payment by small-sized entities and with continued advocacy for digitalization. The findings are also in agreement with Chandra and Raghunathan (2020), who observed that the usage of e – wallets as a payment method significantly and positively predicted the growth of e-commerce, adding that the method stood out in enabling the growth of online trade activity with relatively small-sized retail stores than it did for large corporations. The results are consistent with those of Al - Debei, Alzoubi, and Alabdallah (2020), who concluded that e-wallet usage triggered the buying behavior of customers and positively improved sales volumes since they proved relatively convenient and were hardly threatened by security attacks. In this way, customers continued to experience convenient shopping at a relatively lower cost, yet their work schedules remained uninterrupted. Further still, (Ali, Khan, & Ahmad, 2019) concurs submitting that usage of e – wallets as a payment methodology positively catalyzed e – commerce growth and were predominant with SMEs where smaller transaction volumes were common and less risk was presumed.

5. Conclusion

Based on the results of the main objective, the researchers concluded that e – payment systems positively predict growth in commerce. Furthermore, debit/credit cards and money transfer services are positively associated with and equally positively and significantly predict growth in e – commerce. However, the researchers concluded that, although there is a positive association between e-wallets/e-cash and the growth of e-commerce, the variable, despite a positive contribution to e-commerce growth, is insignificant in predicting the growth of e-commerce. Further, based on the findings, the researchers conclude that the adoption and use of e-payment systems alone is not sufficient to guarantee the achievement of sustainable growth in e-commerce.

5.1 Limitation

Only a handful of methods were selected, yet the sub-sector trades with a host of methods that were left out by the study. This is likely to affect the generalizability of the results to the subsector. However, the delimitation is that the study focused on the most vibrant methods under world-renowned service providers to add credence to the results and increase generalization. The study focused purely on Kampala, and other major towns were not included in the sample despite the fact that there are different cities and locations in Uganda that engage with e-payment systems. However, as Kampala is the central business district in Uganda, key innovations are believed to have started from within Kampala before spreading to other cities and towns.

5.1 Suggestion

Based on the conclusions drawn, the researchers suggest that key players in e-commerce trade should focus on encouraging customers, both existing and prospective, to use both debit and credit cards as well as money transfer services powered by players like Western Union, MoneyGram, worldremit, and union pay post, among others. This is because these payment systems positively and significantly predict the growth of e – commerce. Therefore, any efforts to harness their adoption and usage will go a long way in fostering the growth of e-commerce activities. Furthermore, sector regulators, especially the Bank of Uganda, should consider revising the transaction caps on amounts that are permitted to be moved daily. Moreover, the evolving tax and regulatory challenges of e-commerce transactions require coordinated government responses to ensure sustainable digital market expansion (Hartanto 2020). This is because such a statement presented with a higher variation when descriptive statistics were compiled, which might hinder the improvement of the usage of such payment systems in e-commerce.

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