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Crossing Borders, Cutting Costs: How Remittance Fees Shape Financial Flows Between South Africa and Sub-Saharan Africa

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Declaration

I, Saarah Davids, hereby declare that the work on which this thesis is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university. I authorise the University to reproduce for the purpose of research either the whole or any portion of the contents in any manner whatsoever.

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Acknowledgments

بِسْمِ اللهِ الرَّحْمٰنِ الرَّحِيْمِ
In the name of God, the Most Gracious, the Most Merciful

This thesis is dedicated to my village of friends and family, whose unwavering support, love, and encouragement have been the foundation of my journey.

To my parents, Rashard and Samiega, for their endless sacrifices made quietly and consistently and wisdom that continue to inspire me to strive for excellence.

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With deep gratitude,
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Abstract

Remittances are a critical financial connection between migrant workers and their families back home. They contribute to Sustainable Development Goals (SDGs) like reducing inequality and ending poverty, while aligning with the objectives of South Africa's National Development Plan, which seeks to foster economic growth, financial inclusion, and regional integration. This dissertation examines the cost elasticity of remittance flows between South Africa and 11 sub-Saharan African countries from 2011 to 2023, focusing on how changes in remittance costs influence the volume of remittances sent.

Panel regression analysis reveals a significant negative relationship between remittance costs in South Africa and remittance outflows to 11 SSA countries, particularly for smaller transfer amounts. Specifically, a moderate statistically significant negative correlation between the remittance cost of sending USD $200 and the personal remittance received. This indicates that an increase in remittance costs results in a decrease in the remittance volumes, supporting cost elasticity and the Law of Demand. The variability of remitting $500 is less than remitting $200, indicating that it is cheaper for migrants to remit at larger amounts due to lower transaction costs. However, remittance behaviour suggests inelastic demand: while costs increases, the remittance inflows decrease however not drastically. Regression analysis results show that an increase in the transaction costs results in a steady decline in volumes, while descriptive statistics suggest variations across the different South Africa-SSA corridors. Additionally, results indicate a statistically negative relationship between remittance inflows and GDP of the home country, indicating both influence remittance behaviour. This means that with a higher income in the home country, there is less reliance on remittances. Higher GDP per Capita in both sending and receiving countries is associated with higher remittance costs, suggesting income-related pricing trends.

The study highlights how lower remittance costs can contribute to financial inclusion, economic growth, and poverty reduction and empower household savings, and is consistent with National Payment System's Vision 2025 of the South African Reserve Bank and policies such as the Conduct of Financial Institutions (COFI) Act. The findings underscore the need for targeted policy interventions aimed at fostering competition, innovation and cost effectiveness to reduce remittance costs and improve financial access, to promote equitable economic participation and supporting broader development objectives in the region.

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LIST OF ABBREVIATIONS / ACRONYMS

SDG	Sustainable Development Goals
NDP	National Development Plan
MDG	Millennium Development Goals
SSA	Sub-Saharan Africa
UN	United Nations
MSME	Micro-, Medium- Small Enterprises
GDP	Gross Domestic Product
NPS	National Payment System
SARB	South African Reserve Bank
FDI	Foreign Direct Investment
LMIC	Lower and Middle Income Countries
IMF	International Monetary Fund
G20	Group of 20 countries
G8	Group of 8 countries
RPW	Remittance Prices Worldwide
AML/CFT	Anti-Money Laundering/Countering Financing of Terrorism
KYC	Know Your Customer
SADC	Southern African Development Community
fx	Foreign Exchange
FinTech	Financial Technology
NPC	National Planning Commission
IFAD	International Fund for Agricultural Development
OECD	Organisation for Economic Cooperation and Development
ODA	Official Development Assistance
RPW	Remittance Prices Worldwide
FFR	Financing Facility for Remittances
COVID-19	Coronavirus Disease of 2019
HTA	Hometown Associations
EFT	Electronic Funds Transfer
RSP	Remittance Service Providers
MTO	Money Transfer Operators
FSR	Financial Services Regulation
COFI	Conduct of Financial Institutions Act
DLT	Distributed Ledger Technologies
FSCA	Financial Sector Conduct Authority
FAIS	Financial Advisory and Intermediary Services Act
SmART	Smart Remitter Target
DFI	Development Finance Institution
GSMA	Global System for Mobile Communications

PSP	Payment Service Providers
FIAP	Financial Inclusion Action Plan
Findex	Financial Inclusion Database
EMEA	Europe, Middle East, Africa
B2B	Business-to-Business
B2C	Business-to-Customer
BRICS	Brazil, Russia, India, China, South Africa
USD	United States Dollar
M&A	Mergers & Acquisitions
ESG	Environmental, Social & Governance
RPP	Rapid Payments Program
ACH	Automated Clearing House
PSO	Payment System Operator
RTGS	Real Time Gross Settlement
SAMOS	South African Multiple Option Settlement
BNA	National Bank of Angola
ARDL	Auto-regressive Distributed Lag
FIPA	Kenya's Foreign Investment Protection Act
CBK	Central Bank of Kenya
EAPS	East Africa Payments System
REPPS	Regional Payments and Settlements System
FATF	Financial Action Task Force
CBL	Central Bank of Lesotho
CBN	Central Bank of Nigeria
NIPC	Nigerian Investment Promotion Commission Act of 1995

Chapter 1

Introduction

1.1 Background to the Study

Remittances are a critical financial connection between migrant workers and their families back home. Remittances are not only a lifeline for millions of families but are also an essential link that supports Sustainable Development Goals (SDGs) like reducing inequality and ending poverty. In South Africa, remittances align with the objectives of the National Development Plan (NDP), which seeks to foster economic growth, financial inclusion, and regional integration (National Planning Commission., 2012). This study examines how the cost of sending remittances from South Africa to sub-Saharan African (SSA) countries influences financial flows and development outcomes, particularly in the context of achieving targeted SDGs and meeting the aspirations set out in South Africa's vision for a more equitable and prosperous future.

The Millennium Development Goals (MDGs) laid the foundation for the United Nations' (UN) SDGs for 2030. The 17 SDGs are a combined and concerted effort from both developed and developing nations to address key global areas for peace and prosperity (United Nations, 2023b). This global partnership addresses the challenges of nations targeted to health, education, poverty alleviation, economic growth, climate change by implementing targeted strategies (United Nations, 2023b).Recent updates from the 2023 Specialized Report on the progress of the SDGs present an unfavourable outlook, with 50% of the targets reflecting weak and insufficient progress and 30% reflecting stagnant or progress has regressed (United Nations, 2023b). These statistics include efforts targeted to poverty, hunger, and climate issues, however the indicators address objectives within economies such as financial inclusion. The SDGs are critical in contextualizing and referencing the progress South Africa needs to make to meet the respective targets. Greater societal objectives listed in the SDGs, such as financial inclusion and economic growth, are achievable through the NDP and a National Payments System (NPS) that supports financial stability, innovation, competition and fosters trade. The SDGs are goals for all nations, needs and resources are country dependent and are supported by existing policies, legislation or frameworks to ensure their success and encourage

more national support in terms of frameworks and policies that support the progress of the Goals.

Two critical frameworks relevant to this topic are the National Development Plan (NDP) and South Africa's National Payment System (NPS), which is regulated by the South African Reserve Bank (SARB). The objectives of the SDGs are in line with those of the NDP and NPS. The NDP targets broader economic and societal goals, while the NPS focuses on the regulation, oversight, governance, and operation of payment systems in South Africa. The NPS facilitates how individuals and businesses engage with the financial sector, which in turn, enhances economic growth and expansion (South African Reserve Bank, 2018a). This setup is pivotal in enabling effective international payments between individuals, such as remittances.

Remittances, funds sent by migrant workers, serve as a lifeline for families, primarily supporting basic needs and fueling economic investment in their home countries. These funds weigh heavily on a country’s balance of payments, and are the second largest inflow after Foreign Direct Investment (FDI)(Beck et al., 2022). Remittances continue to climb each year; in 2019 estimates reached US$ 559 billion (Beck et al., 2022)and climbed to US$ 860 billion in 2023. To Lower and Middle Income Countries (LMICs), this figure exceeded estimations and reached US$ 669 billion in 2023 with top countries being India, Mexico, China, the Philippines, and Egypt (Leveraging Diaspora Finances for Private Capital Mobilization, 2023).The countries with the highest values of migrant workers are the United States of America, Germany, Saudi Arabia, Russian Federation and the United Kingdom as at 2020. In South Africa, there is an estimated 4.8% international migrant stock of the total population (UN DESA, 2020).

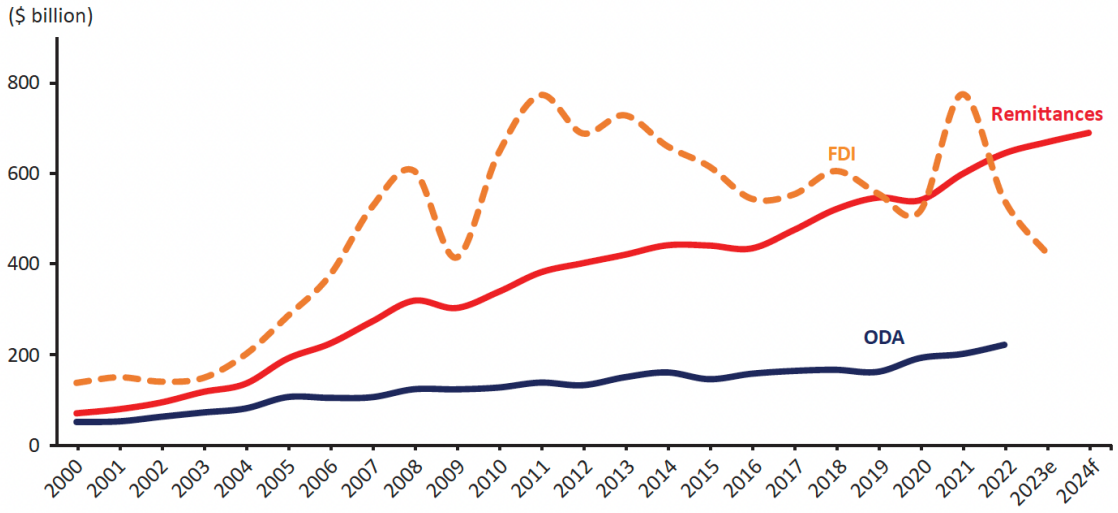


Figure 1: Remittances, Foreign Direct Investment, and Official Development Assistance Flows to Low- and Middle-Income Countries, 2000–2024
Source: World Bank Group, Leveraging Diaspora Finances for Private Capital Mobilisation (December 2023)

The consistently rising financial volumes of remittances over the past few decades underscore their significance and relevance, particularly for developing countries. Additionally, extensive literature highlights the contributions of remittances to economic growth and/or development (Cazachevici et al., 2020; Githiga, 2014; Hamma, 2019; Kiio et al., 2014), and financial development (Aggarwal et al., 2011; Bhattacharya et al., 2018; Chowdhury, 2011; Cooray, 2012; Donou-Adonsou et al., 2020; Fromentin, 2017; Williams, 2016), including aspects of financial inclusion(Bank for International Settlements et al., 2020; Bank Group, 2020; Demirgüç-Kunt et al., 2012; Global Partnership for Financial Inclusion, 2023). This is important in understanding the potential benefit of remittances in terms of development, and the crucial role they play for a developing country like South Africa, that faces setbacks throughout the year, such as political instability, natural disasters, and rising cost of living. Understanding the factors that drive remittances, such as the cost associated with remittances, and unleashing their potential for economic growth and development are crucial within the South African context. While there is significant attention on remittances and their role in financial inclusion, economic growth, financial development and socio-economic growth, the fees associated with remittances and the cost elasticity thereof, require further exploration.

The costs associated with sending remittances are often steep, with fees ranging from 5-15% of the transferred amount, significantly reducing the funds available to migrant families (Beck et al., 2022b). This investment, though modest, can catalyze development and economic

growth, particularly as individuals and families, often in rural areas, engage more actively in formal trade and markets. There is a worldwide concerted effort to reducing remittance transaction fees to 3% globally by 2030 (United Nations, 2016). This is highlighted in SDG 10c(Leveraging Diaspora Finances for Private Capital Mobilization, 2023). SDG 10c states "By 2030, reduce to less than 3 per cent the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5 per cent" (United Nations, 2016). The indicator of SDG 10c is "Remittance costs as a proportion of the amount remitted" (United Nations, 2016) which indicates that this specific goal is monitored and measured as remittance cost as a proportion of the transaction amount. Institutions such as the World Bank and International Monetary Fund (IMF) have deployed special units specifically aimed at reducing remittance transaction fees and fostering financial and digital inclusion, such as the Remittance Prices Worldwide (RPW) and Global Knowledge Partnership for Migration and Development (KNOMAD). Additionally, there are organisations such as the International Fund for Agriculture and Development (IFAD) and Financing Facilities for Remittances (FFR) that monitor, report and provide detailed insight into the remittance landscape worldwide. Many countries have managed to successfully reduce remittance fees, however, South Africa is not one of those countries and statistics show that South Africa, and by extension, sub-Saharan Africa remains the highest region to both remit to, and remit from, with high transaction costs as seen in the persistently high transactions costs reported in the RPW database compared to regional and global averages. Understanding the factors affecting these high remittance costs is essential in trying to address issues and deploy strategies by all payment ecosystem stakeholders -banks, non-banks, policy makers, governments, and private sector -to eventually reach the 3% goal, or face being eliminated. Although the World Bank tracks remittance prices worldwide across more than 300 corridors, the factors influencing high remittance fees in South Africa and sub-Saharan Africa have not yet been thoroughly investigated. Additionally, there is a need for detailed analysis of the underlying policies, legislation, and frameworks, and their effectiveness in achieving the target of reducing remittance fees to 3% or less in South Africa.

This thesis delves into the critical understanding of the impact of remittance fees of remittance between South Africa and the rest of the SSA countries, the cost elasticity of remittance fees in the SSA region, and how they impact the shaping of the remittance ecosystem. It examines the impact of supporting policies, legislature and frameworks that enable a successful and permanent reduction in remittance fees in South Africa.

1.2 Research Problem and Research Questions

Reducing remittance costs has been a policy priority globally for over a decade (Beck et al., 2022a). The initial concerted effort to lower these fees began in 2009 with the G8 countries' public commitment to the 5x5 Objective, which aimed to reduce remittance costs by five percentage points within five years (Beck et al., 2022). However, the SDGs were not solely for G8 countries, but all corridors with exorbitant fee structures. The reporting of remittance prices is executed and compiled by the World Bank, through the RPW database which aids in monitoring progress of the SDG.

It is clear from the above that there is dedicated effort to reducing remittance fees globally, with significant effort placed in monitoring and reporting quarterly prices by banks, money transfer operators and understanding the composition of costs. However, despite efforts and despite the breakdown of fees per region, South Africa's transaction costs remain persistently high (World Bank, 2023)with minimal comprehensive literature to support or understand this phenomenon. In Q1 2023, South Africa's cost of remitting USD $500 was 5.13 %, which is notably higher than the G20 average of 3.66 (World Bank, 2023). The cost of remitting USD $200 in Q1 2023, was 6.65 for South Africa, also higher than the G20 average of 5.48(World Bank, 2023). By understanding the elasticity of remittance fees and transaction costs impact on volumes, which are supported by policy and frameworks, is key to understanding how to address the pain points to ensure the SDG is met by 2030.

There is extensive and in-depth research globally on remittances, this ranges from remittances and financial inclusion , remittances and economic growth and development ((Aggarwal et al., 2011; Bhattacharya et al., 2018; Cazachevici et al., 2020; Chowdhury, 2011; Fromentin, 2017; Githiga, 2014; Hamma, 2019; Kiio et al., 2014)), remittances and migrant profiles ((Ferriani & Oddo, 2019; Odozi et al., 2010) and remittances and financial technology and innovation ((Asongu et al., 2024; Rodima-Taylor & Grimes, 2019). Contrastingly, there is a small pool of literature focused on understanding remittance fees. Beck and Martinez Peria (2011) analysed variations in remittance prices across 119 corridors. Following this, Kpodar and Imam (2024) explored how remittance costs respond to changes in transaction costs using local projections, demonstrating a higher than expected elasticity. Beck, Janfils, and Kpodar (2022) extended this analysis to all available corridors, seeking a broader understanding of remittance fees.

Despite these insights, none fully explain the high transaction costs in South Africa and sub-Saharan Africa. A recent study by Kpodar and Imam (2024) found that even a 3% reduction in costs could significantly boost remittance flows within a quarter, indicating a substantial responsiveness that could add nearly US $32 billion in remittance savings. These studies collectively highlight the dynamics of remittance fees and their impacts but leave gaps in understanding specific regional challenges, like those in South Africa.There is an even smaller pool related to cost elasticity of remittance fees in South Africa and/or sub-Saharan Africa, as literature leans toward global trends and overarching determinants. More recent studies on transaction costs between the SSA region and the United Kingdom was conducted by Wahito (2018) and in Southern Africa by Mukadi (2016).Due to most of the studies leaning toward global trends, particularly by Freund & Spatafora (2008) and Kpodar & Amir Imam (2024), this makes it considerably more difficult to understand the nature of the remittance fee ecosystem in South Africa and SSA, the area with the highest recorded fees for formal remittances, which this study intends to address.

This study relates to a small pool of literature relating to the costs of remittances. Some of the earliest studies, conducted by Freund & Spatafora (2008)who explored the determinants of remittances and the costs associated with remittances. They observed lower costs in regions where financial systems were more developed, and found that remittances depend positively on migrants stock but have a negative relationship with transfer costs and exchange rate. Orozco (2006) investigated trends in money transfers in the Caribbean, and concluded that banks assume a limited role by not promoting financial access to the recipients of remittances. Bersch et al. (2021) sought to understand the potential of Fintech applications for remittance transfers in Central America, and found that digital remittances can not only further reduce transaction costs but poses the potential to increase accessibility by being able to reach the remote, low-income households and highlighted the necessity of cybersecurity and AML/CFT and KYC regulation. Da Silva Filho (2021) delved into the remittance ecosystem and concluded that there exists a vast heterogeneity and unequal environment but that policymakers have a crucial role to play.

This study closely relates to three existing studies, by Beck and Martinez Peria (2011) who utilised the data available for 119 corridors to explore cross-sectional variation in remittance prices, the cost elasticity of remittance in relation to transaction costs utilising local projections by Kpodar and Imam (2024) and Beck, Janfils and Kpodar (2022) who sought to explain

remittance fees across all corridors available. Mukadi (2016) investigated the impact of transaction costs on intra Southern African migrants remittances and findings suggested that with an increase in competition that's reinforced by policies, costs of remittances from South Africa to the SADC region could be lowered. Additionally, the study revealed that bank concentration, exchange rate volatility and exchange control restrictiveness index are key factors contributing to the high costs of fees from South Africa to the SADC region. Most recently a study conducted by the University of Cape Town GSB, Wahito (2018), which focused on the cost of transactions on remittances using a multivariate analysis between sub-Saharan African (SSA) countries and the United Kingdom, and recommended that intra-SSA corridors be studied in future research. The study, however, did not focus on achieving the SDG nor did it consider underlying framework or policies of the countries. The conclusions found as a result of these studies are beneficial, however, do not explain the high transaction costs in South Africa and sub-Saharan Africa and the link of underlying policy.

According to the RPW database, South Africa remains the most expensive G20 country to remit to and remit from, with transaction costs reaching 6.64% and 13.40% respectively (World Bank, 2023). This is more than double the transaction cost goal of the United Nations SDG target goal of 3% and more than 4x the goal of remitting from the origin country. Sub-Saharan Africa in general has an extremely high transaction fee average 8.35% in the region, higher than all other regions in the world. This is followed by Europe and Central Asia (excluding Russia) at 6.59%, Middle East and North Africa at 6.08%, Latin America & Caribbean at 5.81%, East Asia & Pacific at 5.70% and finally South Asia at 4.58%. The sub-Saharan Africa (SSA) region is predominantly cash-based remittances with fees accounting for double the fx margin of transacting, and digital service remittances are highest compared to other regions (World Bank, 2023).

The existing literature (Beck et al., 2022a; da Silva Filho, 2021; Freund & Spatafora, 2008; Kakhkharov et al., 2017; Kpodar & Amir Imam, 2024; Mukadi, 2016; Ratha & Riedberg, 2005; Wahito, 2018)does not provide an understanding of the elasticity of remittance fees in South Africa because most literature focuses on the SSA region, or worldwide reporting. The National Payment System of the region is often studied without examining the link to the end consumer, which is the fees. This study expands on existing literature by focusing on South Africa, by not utilizing the growth expansion model, as previous studies have, but by adopting a new model which analyses the cost elasticity and the transaction costs on volumes. The research question

is focused on the cost elasticity of remittance fees between South Africa and other sub-Saharan African countries for remitting $200 and $500, the underlying policies and frameworks supporting this and how this impacts financial flows.

1.3 Research Objectives

The primary aim of the study is to evaluate the cost elasticity of remittance transaction fees on remittances for South Africa- Sub-Saharan Africa corridors for the period 2011-2023. Specifically, the study seeks to:

- Examine the relationship between remittance costs in South Africa and volume of personal remittances to sub-Saharan Africa.

1.4 Scope and Justification of the Study

This study aims to investigate the cost elasticity of remittance fees and remittances volumes between South Africa and other sub-Saharan African countries for the period 2011-2030. South Africa has well-documented research areas on remittances, ranging from the relevance and impact on economic growth, the impact of macroeconomic factors on remittances and other industries to financial inclusion. The World Bank and other regulatory bodies monitors and reports on the remittances, from total volumes to the costs of sending remittances at transaction levels $200 and $500 to the channels utilized to the forex fees charged, emphasizing the relevance and importance of this field. However, limited studies address the cost elasticity of remittance fees between South Africa and sub-Saharan Africa, leaving a critical gap in understanding how costs impact remittance flows in these regions.

Furthermore, this thesis aims to unpack the supporting policies, frameworks and legislature supporting a remittance fee reduction in South Africa to meet the UN goal of 3% by 2030. By bridging the gaps in literature and providing insight to relevant policies, this study seeks to contribute to the broader agenda of the SDGs of reducing remittance costs thereby enhancing financial inclusion, reducing inequality and promoting economic development. The findings offer recommendations for policymakers, regulations and other key industry players to support sustainable remittance practices in the region.

1.6 Organization of the Study

The study will be structured into five chapters. Chapter one is the introduction and provides a comprehensive introduction to the study, including its background, justification and scope. It also addresses the problem statement, outlines the research objective and presents the hypothesis. Chapter two, the literature review, presents a detailed literature review, exploring existing studies and related research and pertinent discourse within the field. Chapter three outlines the research methodology, detailing the research design, data collection methods, sampling and the rationale behind the selected approach. Chapter four includes the presentation of research findings derived from the methods outlined in chapter three, analysis thereof and elaborates on the findings and implications in the discussion. Chapter five provides the research fidings, presents their interpretation and examines broader implication on policy and framework. This chapter serves as the conclusion of the research, encapsulating recommendations for further studies.

Chapter 2

Literature Review

2.1 Introduction

The literature review is divided into six sections. The first is the introduction which outlines the chapter's objectives and situates the research within the broader context of remittance studies. Section 2 provides an Overview of the Payment System and Remittances in South Africa, focusing on the regulatory environment, remittance pricing, and policies like Vision 2025, the NDP, and the Conduct of Financial Institutions (COFI) Bill. Section 3 shifts to the Remittance and Payment Ecosystem in Sub-Saharan Africa, discussing regional trends, challenges, and opportunities. Section 4 delves into the Theoretical Framework, examining economic theories that underpin remittance behaviours. These theories, Supply and Demand and Cost Elasticity help support the trends and statistics of the volumes of remittances and the relationship with corresponding costs, particularly how volumes of remittances respond to variability in cost. Section 5 reviews the Empirical Literature, highlighting key studies that have investigated the determinants of remittance flows, cost structures, and their developmental impacts. Finally, Section 6 summarizes the literature review.

2.2 Definition of terms and concepts

2.2.1 Remittances

Remittances are defined fairly similarly, and literature bares no friction in its understanding. The International Fund for Agricultural Development (IFAD) defines remittances as "the money sent home by migrant workers" (International Fund for Agricultural Development, 2017). The OECD defines remittances as "funds sent by people living and working abroad to their home families" (Carling, 2005) . The International Monetary Fund (IMF) refers to remittances as the sum of two components in Balance of Payments statistics 1) Compensation of employees and, 2) Personal transfers (International Monetary Fund, 2007) . The IMF expands on the definition of personal remittances as "current and capital transfers in cash or in kind between resident households and non-resident households, plus compensation of employees, less taxes and social contributions paid by non-resident workers in the economy of employment, less transport and trave expenditures related to working abroad" (International Monetary Fund, 2007). The IMF clarifies that remittances are not restricted to cross-border payments but are inclusive of domestic transfers within a country (International Monetary

Fund, 2007) . For the purposes of this study, the IFAD definition will be utilised to conceptualise the measurement of remittances in this context.

2.2.2 The Role of Remittances

Ahead of volumes for FDI and ODA, remittances have increased rapidly and are now the largest source of external finance for many developing countries. Remittances act as essential support and safety net for the families of migrant workers, and their role is vital in LMICs (International Fund for Agricultural Development, 2023). Remittances are acknowledged as a priority in the development diaspora as these investments that are remitted back home constitute an undeniable economic contribution. Existing literature highlights two main motives for remittances: 1) self-interest and, 2) altruism (Owusu-Sekyere et al., 2011). Self-interest motives refer to "rent seeking purposes" whereas altruism refers to the migrant's "assistance to the family back home to meet basic needs" (Owusu-Sekyere et al., 2011). This reinforced the need, importance and contribution that remittances provide for migrant families. This is reflected in other studies that reflect remittances are used for food, healthcare and clothing(Carling, 2005), highlighting the layered nature and impact of remittances for households and families.

President of the International Fund for Agricultural Development, Alvaro Lario, emphasizes the profound and multidimensional impact of remittances on the families of migrants and by extension, the surrounding communities, and underscores the direct impact of remittances on several SDGs (International Fund for Agricultural Development, 2017). The magnitude and volume of remittances is growing exponentially each year. In 2022, half of the US$ 647 billion remittance flows were directed to rural areas, which significantly improved people's lives particularly in areas where poverty and hunger remain persistent, indicating the ability of remittance to alleviate transitory poverty (International Fund for Agricultural Development, 2023). The volume and multifaceted improvement to poorer communities is further substantiated by the Facility for Financing Remittances (FFR) which estimates that over 200 million migrant workers remitted US$ 647 billion to 800 family members in low and middle income countries (LMICs) in 2022 (International Fund for Agricultural Development, 2023). During the period 2017-2022, the volume of global remittances to developing countries increased by 36% , and only experienced a 1% contraction in 2020 due to the COVID-19 outbreak indicating the significant and undeniable development tool posed by remittances

(International Fund for Agricultural Development, 2023). The importance of collaboration, innovation, and partnerships was further emphasized by the European Union Commissioner for International Partnerships who strongly encouraged that remittances be integrated into the development discourse and acknowledge the link remittances have to combatting the climate change (International Fund for Agricultural Development, 2023). The Deputy Director for Operations at the International Organization for Migration, Ugochi Daniels, underscored the need for enabling an environment that supports and reinforces the diaspora, channelling remittances toward sustainable community development and cultivates a prosperous future for global remittance senders and recipients (International Fund for Agricultural Development, 2023).

In 2022, the IFAD Summit outlined 19 strategic initiatives, each contributing and directly impacting the corresponding SDGs. Most relevant is the objective to expand and strengthen remittance data collection, the promotion of interoperable payment systems and enhancing digital access and bundled financial products for remittances senders and recipients and finally, building collaborative partnerships (International Fund for Agricultural Development, 2023). Remittances contribute and influence a region reaching the SDGs in numerous methods. Firstly, at a household level remittance are able to have a positive socio-economic impact on families. Data suggest that on average, 69% of the recipient families income is sourced from remittances which assist with building savings and investments (in order to mitigate risks and uncertainty) and allows the household to build assets (International Fund for Agricultural Development, 2023).

The poverty reduction effects as a result of remittances was analysed across 71 countries which revealed that a 10% increase in per capita remittance leads to a 3.5% decrease in the poorer population, highlighting that remittances keeps individual above the poverty line (International Fund for Agricultural Development, 2017). The analysis also highlighted suggested actionable steps to adopt, which firstly is to encourage affordable and safe access to remittances, particularly in rural areas, which receive 40% of all flows and the areas where remittances are most valued (International Fund for Agricultural Development, 2017). Secondly, to ensure that families invest funds that are being remitted and to build assets, can be done through providing value-added financial and non-financial services (International Fund for Agricultural Development, 2017). Approximately 100 million remitters are women, comprising of half of

all remittance senders, and remit approximately the same amount as men (International Fund for Agricultural Development, 2017).

This knowledge is key in understanding that remittances alters and transforms the economic role of women on both the sending and receiving end by supporting financial independence and provision of improved job opportunities. These steps aim to recognise the pivotal role of women migrant workers and further empower them to dissolve traditional bias and invest in advisory services for women to meet their entrepreneurial goals and facilitate the management of income (International Fund for Agricultural Development, 2017). Lastly, to transcend the financial services that are historically gender sensitive and instead sensitize remittances service providers (RSPs) on the mechanics and trends between migration and gender. The reduction of remittance costs to the SDG goal 3% globally, saves remittances families USD 20 billion annually which allows for more disposable income and investment opportunities (International Fund for Agricultural Development, 2017).

Encouraging policies and actions that promote and encourage dynamics between financial inclusion and remittances and furthermore, safeguarding any adverse impact from climate change can be achieved at a community level. As mentioned, rural communities value remittances most and it is estimated that 50% of remittances are spent on agriculture and agriculture-related expenses (International Fund for Agricultural Development, 2017). The additional income increases the recipient households demand for food which in turn increases the demand on food production and enhances the nutrition for elderly and children which ultimately boosts the investment in agricultural activities (International Fund for Agricultural Development, 2017). The boost in the investment in agricultural practices creates job opportunities and this cycle ensures that food security is strengthened. This is further supported by financial and non-financial service providers and by promoting services for agricultural production. Social capital and pool funds address the needs of the local communities, however, in order to create this migrants and/or families often organise themselves into neighbourhood organisations in their communities or through Hometown Associations (HTAs) in their host countries which will then identify development priorities and participation through technical advice and fund raising(International Fund for Agricultural Development, 2017). The steps taken are to continue the pooling of funds that will enable the continued investment in agricultural practices or sustain the water and sanitation infrastructure and encourage

partnerships local authorities and migrant groups and/or HTAs (International Fund for Agricultural Development, 2017).

Finally, the international impact, outlined by SDG 17 – promotes collaboration across all sectors involved in remittances (International Fund for Agricultural Development, 2017). These objectives are crucial for understanding their relation to NPS in South Africa and the countries in SSA. The NPS of a region is responsible for the overseeing of competition within the market, the encouragement and support of innovation and collaboration between players all of which are crucial focus points for countries to achieve the SDGs by 2030.

2.3 Overview of Payment System and Remittances in South Africa

The NPC oversees the NDP, its core areas and outlines the required steps that need to be taken in order for South Africa to reach its goals. It is chartered in the Constitution and focuses on areas such as poverty, education, labour and climate change, amongst others (National Planning Commission., 2012). Both the NPS and NDP have a joint timeline, which is 2030, to achieve the respective goals. Being two of the main overarching policy frameworks that impact remittance fees and the impact of these plans on meeting the SDG, is crucial in understanding the direct impact it has on ensuring the goal is met. While some countries address this directly, as the SDG does, this has been documented as a by-goal that is addressed through other avenues such as innovation, competition or technology, with the hopes that these factors reduce fees as a result (National Planning Commission., 2012). South Africa faces both internal challenges such as high unemployment rate, low savings rates and external challenges such as slow global growth rates due to financial crisis (National Planning Commission., 2012). The challenges are detailed in the NDP which is also inclusive of the SDGs applicable to South Africa. The NDP encompasses other frameworks such as the NPS and Vision 2025 which enforced through the central bank of South Africa.

The SARB is the central bank of South Africa and is the regulatory body enforcing the NPS , NPS Act and all other relevant acts that apply to the NPS. The NPS applies to all relevant stakeholders and participants that form part of the payment ecosystem (South African Reserve Bank, 2018a). In order to ensure that relevant participants are involved, the NPS makes mention of the stakeholders and key players in the payments ecosystem, such as: government, regulatory bodies (such as SARB), financial institutions, banks, international banks (such as IMF), non-

bank entities (Mastercard/VISA), financial crime monitoring action task forces (such as FATF), business incubators, FinTechs, MSMEs and consumers (South African Reserve Bank, 2018a). The ability of South Africa, and its businesses and consumers, to participate in the financial world within the SSA is dependent on both the sophistication of its payment systems and the extent of financial inclusion. National Payment Systems have been previously described as a set of rules and agreements that is unseen by the South African public, however, Alhassan & Kouadio (2019) describe a payment system as "…the overall payment procedures, thus consisting of the processes, mechanisms, agreements, systems, institutions, rules and laws". It is imperative that participants co-operate towards the common goal and contribute to the evolution and functioning of their payment system (Alhassan & Kouadio, 2019).

The NPS provides the required policy, framework and legislature that controls pricing, or transparency of pricing for remittance transactions across Remittance Service Providers (South African Reserve Bank, 2018a). The payment systems ability to support a myriad of transactions efficiently, safely, and cheaply is key for consumers and businesses to flourish, for example, the option to send remittances, cross-border payments and/or immediate EFTs. The financial funding, support and investment of the technology and systems behind this, through start-ups, business incubators, is key for regulation and with sufficient transparency will encourage collaboration to encourage competition (Alhassan & Kouadio, 2019). Broader objectives such as job creation and economic growth are achieved through an efficient NPS due to inter-linkages with fiscal, external and real sectors (Alhassan & Kouadio, 2019). This results in an overarching target which is a greater standard of living (Alhassan & Kouadio, 2019).

This framework and strategy specifically relates to this study as it controls the transparency and competition amongst Remittance Service Providers (RSP) which in turn controls the fees. In a more transparent ecosystem, fees are kept at a minimum and service providers are supported by framework and policies to foster and enable competition favouring the consumer (South African Reserve Bank, 2018a). This is a crucial first step in ensuring that banks, Money Transfer Operators (MTOs) and Digital Services adopt strategies that ensure the target goal of 3% is reached within the next five years. Additionally, market conduct, cost-effectiveness and the enabling of competition and innovation is further unpacked in the Action Plan and delineates the tangible and objectionable goals to be taken by banks and non-banks in South Africa (South African Reserve Bank, 2018a) .

The NPS consists of arrangements and infrastructure that is typically unseen by the public, that facilitate the transferring of funds between consumers, businesses and other entities using accounts at financial institutions (South African Reserve Bank, 2018a). The significance thereof lies in fostering deeper integration of the South African economy with the rest of the world, where goods and services are paid between the South African population, its businesses, corporates and the rest of the world. The success of the NPS is how well South Africa is able to participate with the rest of the international financial world. Moreover, a well-functioning NPS provides a foundation for achieving broader societal objectives, such as enhancing financial services for all citizens, contributing to a stable financial system and mitigating the risk of financial crises (South African Reserve Bank, 2018a).

In order for the NPS to impact remittance senders and recipients directly, the NPS itself needs to be safe and cost-effective. The direct impact of a safe and cost-effective NPS is: 1) lower fees as a result of interoperability and ubiquity which is observed by the end-user, 2) seamless links to public transport, 3) operational efficiencies such as paying a bill or fee online and 4) businesses and governments are to be active participants in trade (South African Reserve Bank, 2018a). This is a pivotal point in understanding how the sophistication of a payment system affects consumers and businesses, and in order to achieve a world-class payment system the goals and vision of the payment system need to be robust and adopted through a holistic approach. The NPS needs to be an ever-evolving initiative that meets the changing needs of business, consumers and governments to meet the international standards as a member of BRICS and Group of Twenty (G20) (South African Reserve Bank, 2018a).

2.3.1 Vision 2025

SARB presented the NPS Framework and Strategy for Vision 2025 in 2018. The goals, actionable steps and strategies for the national payments industry are delineated in the framework to achieve by its target date of 2025. The initiative aimed to serve South Africa, its people, businesses and consumers with an advanced payment system.

The SARB fulfills a regulatory, supervisory, and oversight role and responsibilities for the NPS, and prioritizes the 9 key goals below.

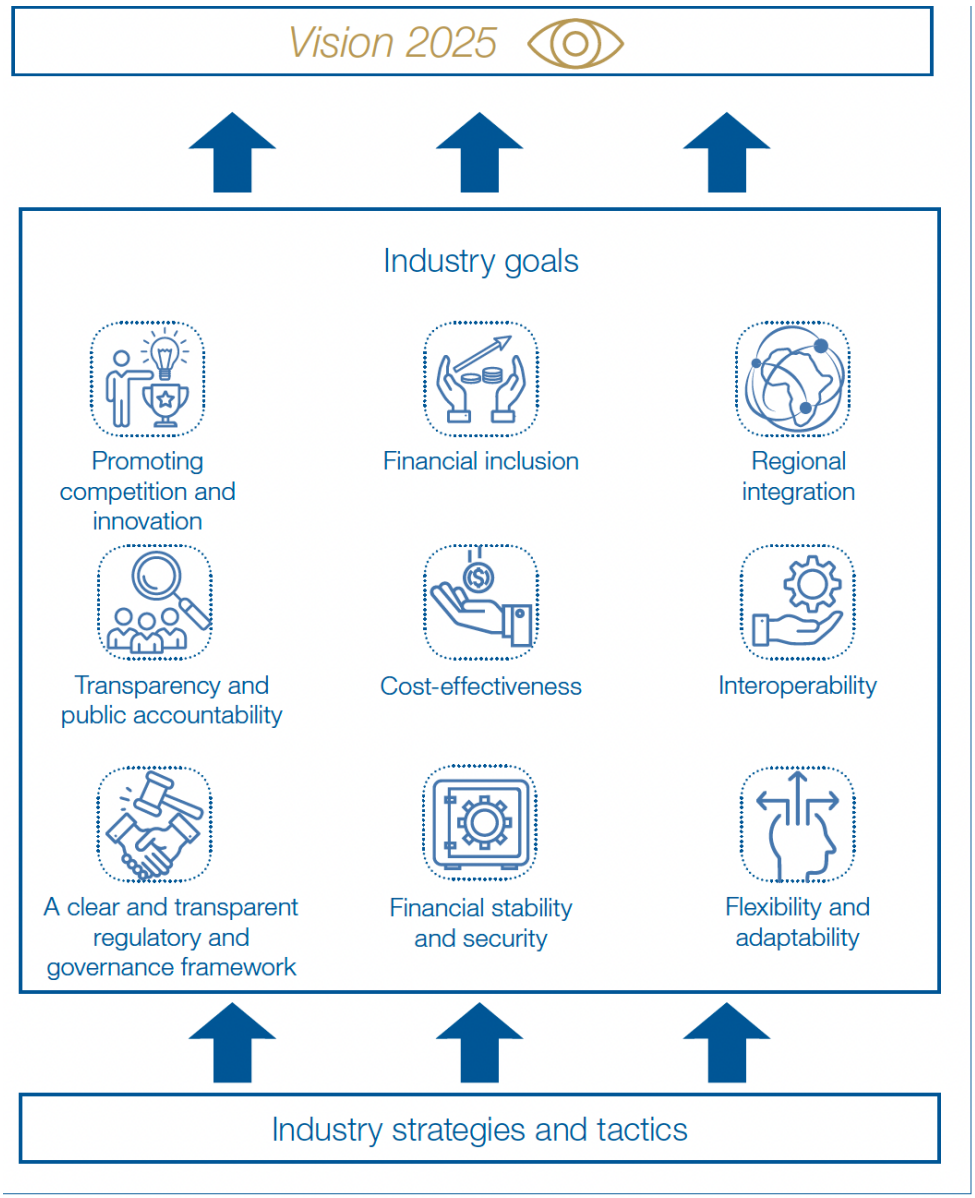


Figure 2: The Nine Goals of Vision 2025. Source: South African Reserve Bank Vision 2025

The media release post-launch of the NPS states that the "goals of Vision 2025 are aligned with the economic development goals outlined in the NDP, contributing to broader societal objectives such as financial inclusion" (South African Reserve Bank, 2018).This highlights the synergy and ripple effect of the NPS on the NDP which impacts the SDGs. As indicated earlier, the objectives of Vision 2025, embedded in the NDP, align with numerous SDGs.

Collaboration is key and this is within the backbone of Vision 2025. This vision involves the active participation of a diverse range of stakeholders which is inclusive of FinTech startups, the private and public sector and SMEs (South African Reserve Bank, 2018a). Establishing a healthy partnership and competition among these entities are crucial to fully realize the impact of Vision 2025 and unlock its potential(South African Reserve Bank, 2018a). Vision 2025 is the successor of Vision 2015, which has yielded greater progress than its predecessors.

A key success factor is the environment which encourages progress, and this is done through creating a harmonious environment to implement and deploy the strategies within Vision 2025 One of the key success actors is an environment that is conducive to progress (South African Reserve Bank, 2018b). Through a combination of approaches such as "1) A collaborative approach among industry stakeholders, 2) A clear transparent regulatory and governance framework of banks and non-banks, 3) A sound risk management framework for all payment systems, 4) Ongoing engagement and communication within and among all structures of the national payment system, 5) A market conduct authority that functions effectively, 6) Regular monitoring and measuring of programs and initiatives this is achieved"(South African Reserve Bank, 2018b).

Establishing regulatory and governance framework that is transparent is considered of utmost importance, and is highlighted as the first success factor in the NPS (South African Reserve Bank, 2018b). Optimistically aiming to achieve this through a safe, stable and accessible NPS, Vision 2025 hopes to achieve this goal by remaining committed to continuously improvement of the NPS, through the implementation and adoption of just strategies, supporting and cultivating healthy competition and protecting consumers and aiding goals such as financial inclusion (South African Reserve Bank, 2018b).

The SARB's Vision 2025 outlines several goals to strengthen the NPS. Transparency and public accountability aim to build trust, support competition, and enhance system safety by identifying trends and risks (South African Reserve Bank, 2018a). Financial stability and security are targeted through mitigating risks like liquidity and credit concerns while emphasizing education on cyber threats and fraud prevention. The focus on promoting competition and innovation is about fostering competition to drive service improvements, reduce costs for consumers, and expand opportunities for participants (South African Reserve Bank, 2018a). Cost-effectiveness is pursued by enhancing system efficiency, interoperability,

and lowering interbank pricing, supporting broader goals like financial inclusion (South African Reserve Bank, 2018b). Ensuring flexibility and adaptability involves future-proofing systems to handle evolving demands and threats, minimizing the need for costly overhauls while contributing to financial inclusion (South African Reserve Bank, 2018a). Finally, financial inclusion remains a central objective, aiming to improve access to financial services, raise living standards, and create a more equitable society, while expanding the market for service providers(South African Reserve Bank, 2018a).

2.3.2 Regulatory, Policy and Legislation Review

Vision 2025 underscores the importance of collaboration among various entities to review, revise, and refine regulations, policies, and legislation. This initiative aims to align with international standards while addressing the dynamic needs of the industry and consumers. Through active engagement with stakeholders, these entities collectively work toward the successful realization of Vision 2025.

The diversity of stakeholders involved in Vision 2025 include the numerous associations such as Association of System Operators, the Banking Association of South Africa (BASA), BankservAfrica Ltd, the Commercial Independence Bureau Association, the Payments Association of South Africa (PASA), to international corporations such as VISA Inc., MasterCard Worldwide, PayGate, and includes forums such as the Payment System Stakeholder Forum, the South African Banking Risk Information Centre, the South African Retailers' Payment Issues Forum and Central Securities Depository such as Strate Pty Ltd., among others (South African Reserve Bank, 2018a). A key initiative in the Vision 2025 Action Plan focused on ensuring that regulatory frameworks align with international standards and principles. This initiative involved researching and reviewing existing regulatory frameworks and developing new ones to meet both domestic and international benchmarks. With the participation of 18 supporting stakeholders, this initiative was successfully completed in December 2020. The measure of success was the alignment of regulatory frameworks, standards, and position papers with relevant international principles. This initiative directly contributed to achieving Goals 1, 2, 3, 4, 6, and 7 of Vision 2025 (South African Reserve Bank, 2018a).

The second half of the first initiative, is focused on the well-emphasized and much needed supervisory and oversight frameworks. In addition to the frameworks is the Conduct Standards which elaborates on the adoption and implementation of the COFI Act which aligns with the FSR Act. The COFI Act oversees the conduct and standard for payment services providers, which includes remittance service providers and financial institutions (South African Reserve Bank, 2018b).

The NPS Action Plan delineates the specific steps to be taken in the short, medium and long term and tracks the progress of each step towards the deadline of 2025(South African Reserve Bank, 2018b). Within the Action Plan is a FinTech section which discusses the need to create an enabling framework specifically directed at FinTech in the payments landscape. At present, this is a developing initiative. However, steps toward the completion of this specific goal are explore the feasibility of innovation facilities in the NPS, to review the criteria for entrants for accelerators and regulatory sandboxes and to explore the use cases of FinTech within the payments landscape as well as test the feasibility of Distributed ledger Technology (DLT) (South African Reserve Bank, 2018b). The progress made thus far includes the feasibility report of payments, innovation hubs and sandboxes and the entry criteria has been developed and the testing environment is operational. However, there is progress to be made on the use cases on FinTech and the testing on the DLT initiative (South African Reserve Bank, 2018b).

As highlighted above, the COFI Act is one of the targets in the NPS that will be responsible for market conduct and standards amongst payment services providers which includes many of the key players in the remittance ecosystem. The necessity of looking at frameworks is not only for the purposes of reforming remittance structures to enable a reduced fee structure for consumers. In a fairly recent study investigating the efficacy of anti-money laundering legislations of electronic banking and informal remittance systems in Nigeria and South Africa byDavid (2018). The thesis stated that over the last 50 years, Africa has lost in excess of USD $ 1 trillion in illicit financial flows, due to criminal activities such as corruption, cross-border smuggling (David, 2018). The report highlighted the necessity of AML-CFT frameworks to be able to trace funds easily and cost-effectively, and reinforce the compliance of participants with AML regulation (David, 2018).

2.3.3 Remittance Fees

Remittances are pivotal to development, as highlighted in the preceding section. However, transaction fees associated with remittances remain significantly high. Studies suggest that 5% to 15% of remitted funds are lost to these fees, with costs varying by country and transfer amount (Ratha & Riedberg, 2005). These elevated costs disproportionately affect migrants from lower-income groups, often deterring them from sending money or pushing them toward more affordable but informal and less secure transfer channels (Ratha & Riedberg, 2005).

As highlighted previously, this study contributes to the limited but growing body of literature on remittance fees. A notable study by Freund & Spatafora (2008) linked lower remittance costs to well-developed financial systems and concluded that remittances were positively associated with migrant stock but negatively affected by transfer costs and exchange rates. Similarly, Orozco (2006) noted minimal bank involvement in enhancing financial access for recipients in the Caribbean, while Bersch et al. (2021) underscored the potential of digital remittances to lower costs and expand reach, though with effective regulations related to AML/CFT and KYC. Da Silva Filho (2021) sought to understand the remittance ecosystem and emphasized the unequal and fragmented nature of said ecosystem, and highlighted the role of policymakers. More closely related to this study are Beck and Martinez Peria (2011), who examined corridor-level price variations across 119 remittance corridors; Kpodar and Imam (2024), who most recently measured remittance elasticity to transaction costs on a global scale using local projections; and Beck, Janfils & Kpodar (2022), who explored drivers of remittance fees globally. Ardic & Natarajan (2021) discovered that corridor-level factors such as distance, competition, and borders, significantly influence costs. Most closely related to the region of interest, is the study conducted by Wahito (2018), who studied the remittance costs between the UK and sub-Saharan Africa, and suggested further studies on intra-SSA corridors and Mukadi (2016) who investigated the transaction costs of remittance fees in Southern Africa (South Africa to SADC region) and concluded fees could be reduced with reinforced policies. While these studies provide valuable insights, they fall short of explaining the high remittance costs in South Africa and sub-Saharan Africa, which is an area this study aims to address.

Due to extreme lockdown conditions of the COVID-19 pandemic which caused immediate job losses amongst the migrant population, this caused a sharp decline in remittance flows (Bisong et al., 2020). Additionally, the research encouraged policymakers to encourage the use of digital platforms, to mitigate job loss and to ease stringent identification requirements that are demanded of migrants in order for them to remit to home countries (Bisong et al., 2020).

Transaction costs is not always a concern for large financial flows such as those associated with international trade, Foreign Direct Investment, or development assistance. In these instances, the transaction costs are negligible to the total transaction. However, the cost of remittance is disproportionate to the amount being remitted. In formal channels, Remittances service providers reportedly charge a fee ranging 10-20% of the total remittance amount, impacting both the migrant and migrant's family with higher financial burden and less benefit (Ratha & Riedberg, 2005). There have been numerous studies on the determinants of remittance cost prices. In a recent study conducted in 2021, which focused on remittances to developing countries, results found that the transaction costs associated with remittances could be utilised as a vital predictor of volumes in formal channels and additionally revealed that a 1% decrease in price of remitting USD 200 would lead to a 1.6% increase in remittances and suggested that the policies designed to increase formal remittances should focus on decreasing the cost of remitting through formal channels(Ahmed et al., 2021a).

The World Bank monitors two formal remittance channels in which remittances can be sent or received, which are 1) money transfer service, 2) an account. This is characterized by either the individual that is, 1) Sending domestic remittances or, 2) Receiving domestic remittances and lastly, 3) Sending or receiving domestic remittances (World Bank, 2023). The RPW database, managed by World Bank, provides quarterly commentary and monitoring commentary on the remittance prices worldwide of 367 corridors, which include 48 remittance sending countries and 105 receiving countries(World Bank, 2023). Numerous Russian corridors and Nigerian corridors were excluded from the latest report due to ongoing Russia-Ukraine war and the Central Bank of Nigeria banning all outbound transfers from the country (World Bank, 2023). In the latest report, it stated that the global average cost of sending $200 is 6.25% whereas the average cost of sending $200 digital remittances is 4.72%. the Global SmART average is 3.47%.

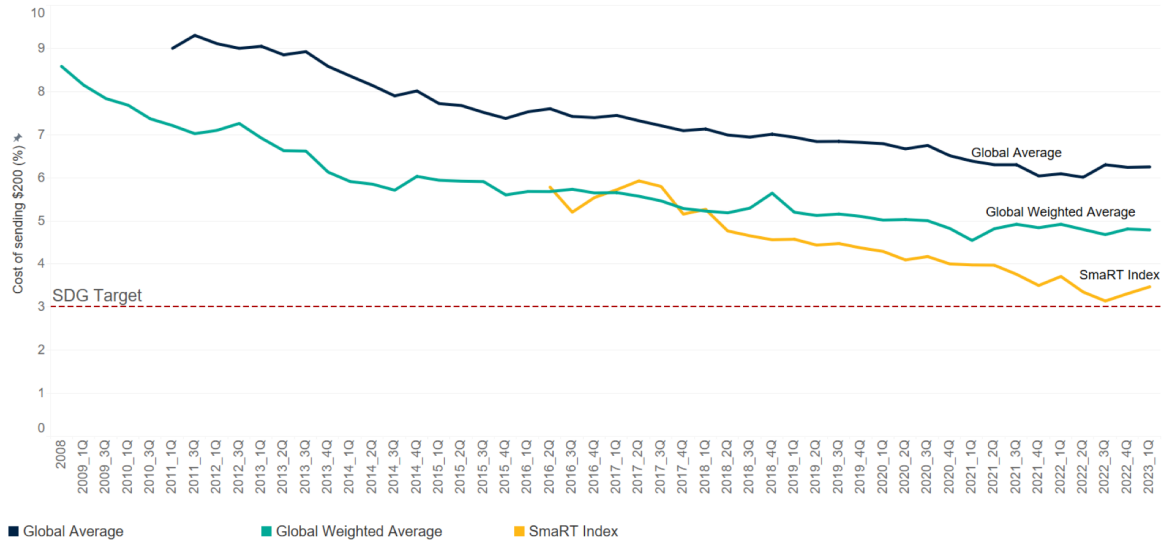


Figure 3: Trends in the Global weighted average and SmaRT average. Source: World Bank: Remittance Prices Worldwide Quarterly: An analysis of trends in cost of remittances. Issue 45.

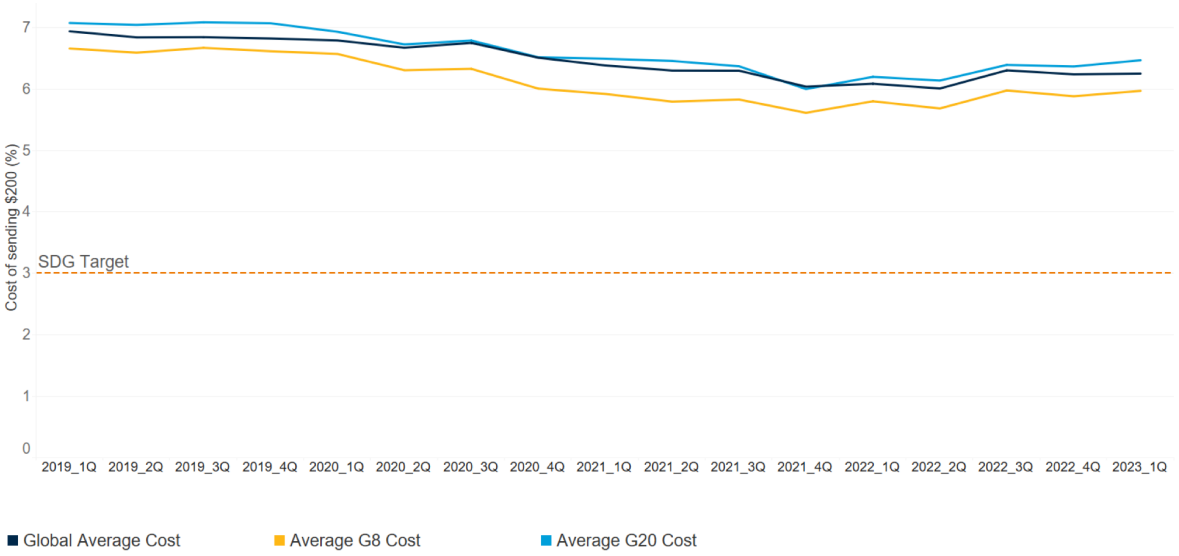
As seen in Table 1 below, the global average and global weighted average have steadily declined since 2009.

Table 1: Corridors without SmaRT qualifying services with "Green Light" rating for mobile services.

Box 1- Corridors without SmaRT qualifying services with "Green Light" rating for mobile services		
Angolia to Namibia	Qatar to Sudan	Saudi Arabia to Sudan
Italy to Egypt, Arab Rep.	Nigeria to Benin	Saudi Arabia to Syrian Arab Rep.
Ghana to Nigeria	Nigeria to Mali	Jordan to Syrian Arab Rep.
India to Bangladesh	Nigeria to Togo	United Arab Emirates to Yemen, Rep.
India to Pakistan	Netherlands to Suriname	United Arab Emirates to Sudan
India to Sri Lanka	South Africa to Lesotho	United States to Yemen, Rep.
Qatar to Egypt, Arab Rep.	South Africa to Swaziland	
Note: In Q1 2023, RPW continues to experience difficulties in collecting data on all outbound services from Nigeria. In addition, data on services originating in the Russian Federation (13 corridors) were not included. Therefore, for Q1 2023, RPW reports no qualifying services in these 16 corridors, three of which are listed in this Box in italics.		

Source: World Bank: Remittance Prices Worldwide Quarterly: An analysis of trends in cost of remittances. Issue 45.

Figure 4: Corridors without SmaRT qualifying services with "Green Light" rating for mobile services. Source: Remittance Prices Worldwide (RWP) database



Source: World Bank: Remittance Prices Worldwide Quarterly: An analysis of trends in cost of remittances. Issue 45.

As seen in Figure 5, South Africa is the most expensive country to both remit and from in the G20 category, with persistently high fees, for transaction level $200.

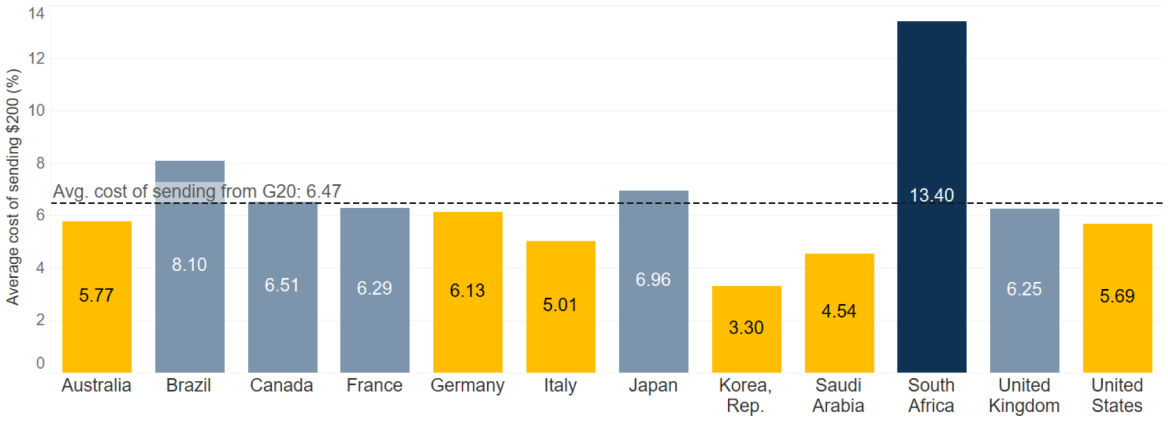


Figure 5: Average cost of remitting $200 from G20 countries.
Source: World Bank: Remittance Prices Worldwide Quarterly: An analysis of trends in cost of remittances. Issue 45.

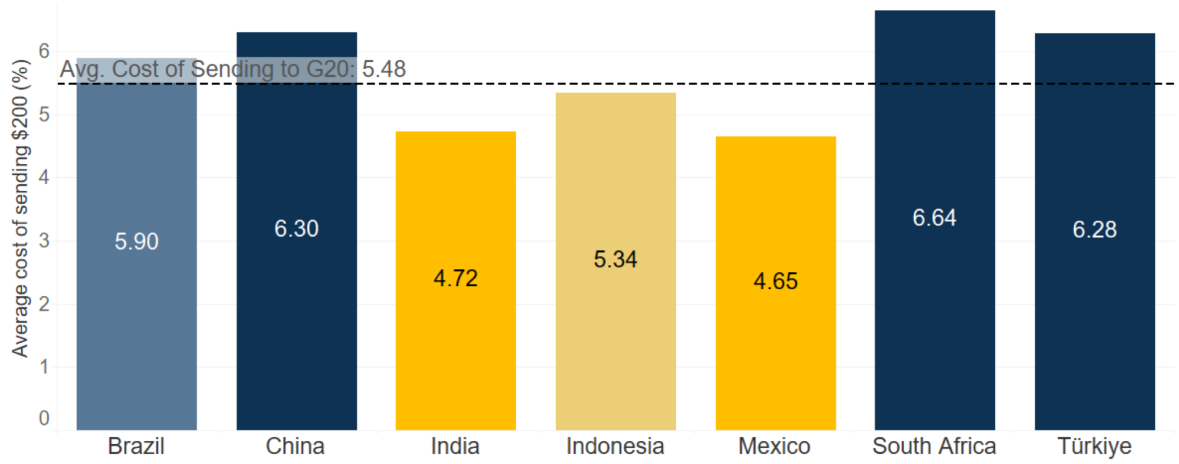


Figure 5: Average cost of remitting to G20 countries, by Country. Source: World Bank: Remittance Prices Worldwide Quarterly: An analysis of trends in cost of remittances. Issue 45.

As seen in figure 6, South Africa is the most expensive country to remit to in the G20 category.

In the G8 category, which includes some of the largest remittance sending countries, the most expensive is Japan (6.96%), Canada (6.59%) followed by France (6.29%) from Q1 to Q4 2022.

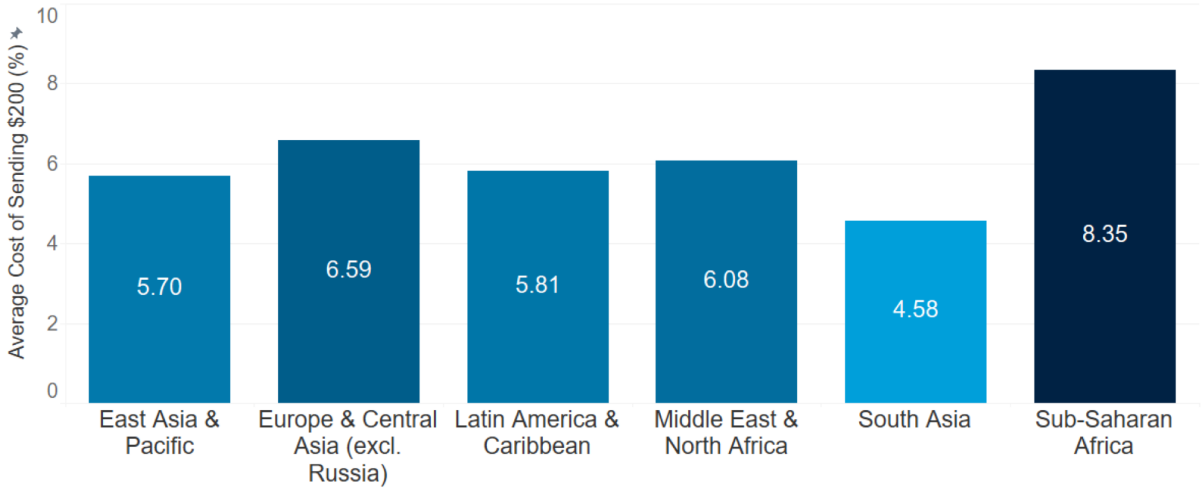


Figure 6: Average costs by region of the world.
Source: World Bank: Remittance Prices Worldwide Quarterly: An analysis of trends in cost of remittances. Issue 45.

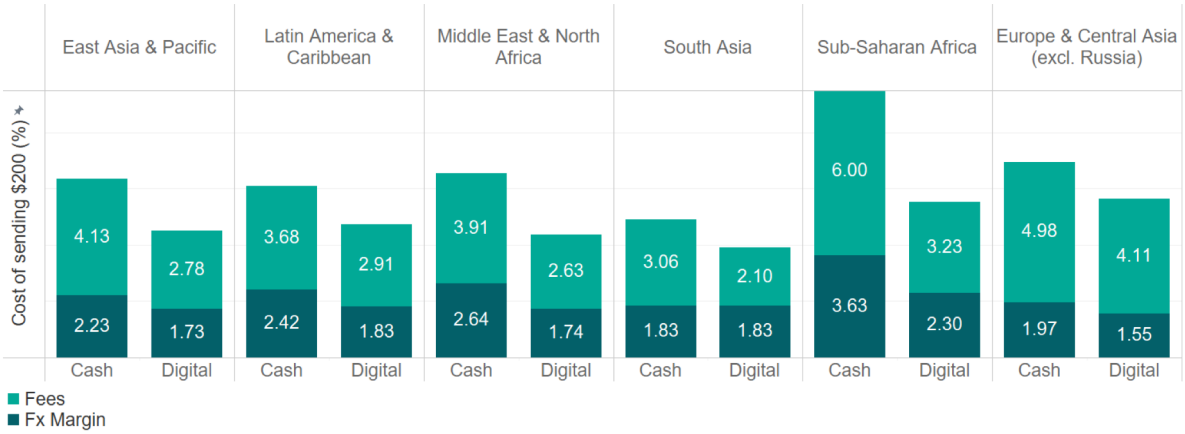


Figure 7: Average costs by region: cash vs digital.
Source: World Bank: Remittance Prices Worldwide Quarterly: An analysis of trends in cost of remittances. Issue 45.

As seen in Figure 9, Sub-Saharan Africa has the largest cost of remittances in both fees and Fx Margin for cash remittances. For digital remittances, the only other region ahead of sub-Saharan Africa is Europe and Central Asia (excluding Russia). Most other regions have maintained fees around the 5% target, for both cash and digital remittances.

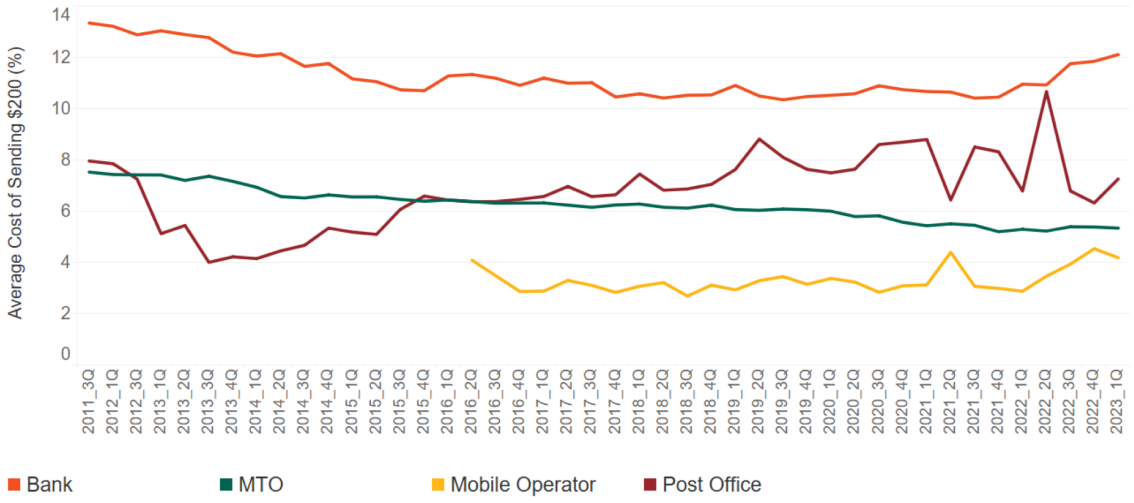


Figure 8: Total Averages over time by RSP type.
Source: World Bank: Remittance Prices Worldwide Quarterly: An analysis of trends in cost of remittances. Issue 45.

As seen in Figure 9, the cost to remit $200 via the different categories of Remittance Service Providers has overall decreased, however minimally, since 2011. Banks remain the most expensive, followed by Post Office, Money Transfer Operator and lastly Mobile Operator.

2.3.4 FinTech-driven Remittance Fees vs Banks

New advances in financial technology may be the answer to lower transaction fees. South Africa is one of the strongest FinTech hubs on the African continent (World Bank et al., 2019). Fintech is defined as "technologically enabled financial innovation that could result in new business models, applications, processes or products with an associated material effect on the financial markets and institutions and the provision of financial services" (FSB, 2017) . This opens up the dialogue to question the product offering from banks, non-banked intermediaries, governments and DFIs (FSB, 2017). Innovation, competition and the rise of Fintech may have enabled further competition in the existing ecosystem, impacting reduced fees or enabling a proliferation of products. Remittances are payments that rely on the sophistication of the existing infrastructure and product offering of a country, and additionally the co-operation of other countries and the ability of their financial systems and payment systems to support cross-border payments.

Banks remain the most expensive route for sending remittances in sub-Saharan Africa by charging 10.9% the principal amount compared to post offices which charged 7.6% the principal amount in 2019 (Ahmed et al., 2021b). Over the past few years, the proliferation of payment apps designed to replace and/or streamline bank transactions, cross-border payments and remittances has increased exponentially (Ahmed et al., 2021b). In South Africa, a variety of FinTech remittance products are available, offered by diverse institutions, companies, and government entities(World Bank et al., 2019) . Within the South African context, there exists a gap in the discourse that seeks to understand the prevalence across multiple sectors and an analysis of the performance of the newer FinTech alternatives to that of traditional lending in reference to the costs of remittances.

Ahmed et al. (2021) highlighted benefits to lowering transaction costs. Firstly, with lower transaction costs, a larger portion of funds will be available for migrant families, lessening the financial burden on the migrants. Secondly, in the formalised remittance channels, reducing the cost of remittances will increase the volume through formal channels such as banks which will contribute directly to the receiving countries balance of payments. Thirdly, the socio-economic advantage such as financial inclusion and Digital Inclusion which will widen the financial sector and its participants.(Ahmed et al., 2021a)

Three key studies reveal the importance of harnessing the potential of technology to facilitate the reduction of costs associated with remittances. A report on mobile money remittances by GSMA (Global Association for Mobile Communications Association) revealed that mobile technology has the potential to reduce the price of remittances in half (Global System for Mobile Communications Association, 2016). PayPal and Xoom conducted independent research that echoes the results of GSMA, with results pointing to a 3.93% reduction in costs if remittances are sent digitally (Nicoli, 2019). These results are consistent with the findings of GSMA in terms of cost reduction, but also the potential savings for senders is further revealed by a third study conducted by World Bank and Bank of Albania. This study revealed that if international remittances were remitted via e-money channels, would significantly reduce costs and potentially save senders USD$1.3 Million annually and additionally save Payment Service Providers approximately US $ 6.7 Million(Bank of Albania, 2018). Based on these positive results, the application of technology, and specifically innovation, should be further explored through case studies and supported through frameworks. In addition to potential savings of beneficiaries and PSPs, technology can assist with the time taken to remit. In a study conducted by Xoom, it was found that up to 15 days could be saved if remittances passages were focused through mobile financial services, equating to 100 million hours for the Mexican economy and savings nearly US $ 450 million (Nicoli, 2019).

SDG 10c commits to reducing the remittance fee to 3% of the transaction fee and eliminate corridors with costs exceeding 5%. The reduction of global costs to 3% in channels would result in an estimated savings of USD 20 billion annually(United Nations, 2022). In order to monitor the progress of the SDG, World Bank created an index called the SmaRT index (Smart Remitter Target) which encompasses access, speed, transfer and reach. The latest update from the index is that 37% of corridors remain above the 5% threshold, as of September 2018 (Nicoli, 2019).

2.3.5 GPFI Monitoring: Countries remittance policies

As seen in Figure 6, South Africa is the most expensive G20 country to both remit to and remit from. Understanding if the other sub-Saharan African countries have adequate policies, frameworks or plans in place that have addressed the remittance fee is important to this study.

As part of GPFI's monitoring, the G20 countries' policies and amendments are detailed in the latest publication. The European Union, Australia, Indonesia, Korea, Mexico, Saudi Arabia did not provide any information to the questionnaires, and Turkey provided a small contribution. South Africa is one of the countries that did not provide an update. The questionnaire surrounds topics that are: country's remittance profile, risk and governance, competition in the market, regulatory environment, payment infrastructure and access to financial services (Global Partnership for Financial Inclusion, 2023).

The G20 has, additionally, launched the Roadmap for Remittances, which identifies persistent challenges and adopts an action plan to address these challenges, for cross-border payments and retail payments as a whole (Global Partnership for Financial Inclusion, 2023). The core focus of the action plan are: 1) for the public and private sector to commit to a common vision that enhances cross-border payments, 2) to synchronize the regulatory, supervisory and oversight frameworks, 3) to enhance the payment infrastructure to address the needs of the remittance and cross-border payments market, 4) to improve the data quality and finally 5) to explore new payment infrastructure (Global Partnership for Financial Inclusion, 2023) .

Table 2: G20 targets for remittances

	Target
Cost	Reaffirm UN SDG: By 2030, the global average cost of sending USD 200 remittance should not exceed 3 per cent, with no corridors above 5 per cent.
Speed	By the end-2027, 75 per cent of cross-border remittance payments in every corridor should be available to recipients within one hour of payment initiation and the rest within one business day.
Access	By the end of 2027, more than 90 per cent of persons (including those without bank accounts) who intend to send or receive a remittance payment will have access to an electronic cross-border remittance payment method.
Transparency	By the end of 2027, all payment service providers must provide the following information regarding cross-border payments to payers and payees: total transaction cost (showing all relevant charges, including sending and receiving fees including those of any intermediaries, FX rate and currency conversion charges); the expected time to deliver funds; tracking of payment status; and terms of service.)

Source: Financial Stability Board (FSB), 2022

Table 1 describes the targets for the G20 countries, of which South Africa is a part of and highlights the holistic approach that can and should be supported by an NPS or Action Plan, as the Cost, Speed and Transparency categories speak to the innovation, competition and collaboration and transparency that should be applied to banks. The Access category is especially important as it directly speaks to Financial Inclusion

2.3.6 Financial Inclusion

Different bodies, entities and institutions have defined Financial Inclusion differently.

Financial inclusion is a multidimensional concept focused on ensuring access, usage, and quality of financial services. According to the Global Partnership for Financial Inclusion (GPFI), access is measured by the availability and affordability of financial products, while usage assesses the depth and frequency of service use, and quality refers to how well services meet individual needs (GPFI, 2023). This study adopts the OECD definition, which emphasizes broad access to affordable and quality financial products, leveraging innovative approaches

like financial education to promote economic and social inclusion. Financial systems should facilitate savings, credit, payments, and risk management, while inclusive systems extend these services to poor and disadvantaged groups, supporting broader socio-economic goals (Demirguc-Kunt et al., 2012).

Historically, the impact of financial exclusion was not well-documented. The introduction of the Global Findex database by the World Bank has changed this, offering comprehensive indicators on financial service use across 148 economies (Demirguc-Kunt et al., 2012). This data has enhanced understanding and opened up new opportunities for advancing financial inclusion. At the G20 Summit in 2023, the Financial Inclusion Action Plan reaffirmed the importance of remittance flows and committed to using financial technology for faster and cheaper transfers, highlighting financial inclusion's role in fostering sustainable and inclusive growth (GPFI, 2023).

The World Bank defines financial inclusion as access to affordable, appropriate, and sustainable financial services like payments, savings, credit, and insurance(World Bank Group, 2022). The digitization of financial services is central to this effort, enabling greater efficiency, reduced risks, and user-friendly access for individuals, businesses, and governments (Shipalana, 2019). There are five basic financial needs that underpin inclusion: remittance, transactions, savings, borrowing, and insurance (Shipalana, 2019).

Financial inclusion is closely linked to several SDGs, particularly SDG 1 (poverty reduction), SDG 2 (food security), SDG 3 (health), SDG 5 (gender equality), SDG 8 (economic growth), SDG 9 (innovation and infrastructure), SDG 10 (reduced inequality), and SDG 17 (partnerships for development). Digitizing payments and expanding access to financial services can drive significant progress in these areas, especially for small and medium-sized enterprises (SMMEs) and underserved communities (Shipalana, 2019).

The World Bank's commitment to the G20 High-Level Principles for Digital Financial Inclusion has led to substantial progress. The number of adults without access to a bank account decreased from 2.5 billion in 2011 to 1.4 billion in 2021. Mobile money has played a key role in this shift, with over 1.35 billion accounts globally as cash-based economies transition to formal financial services (World Bank Group, 2022). Despite these advances, 1.4 billion adults

remain unbanked, highlighting the ongoing need to expand access and drive economic growth through financial inclusion.

Within a South African context, the NDP and NPS highlight financial inclusion as one of the broader societal objectives achieved through successfully implementing the strategies of each framework by the respective deadline of 2030.

2.4 Remittance and Payment Ecosystem in South Africa and sub-Saharan Africa

The NDP is a plan to eliminate poverty and reduce inequality by 2030 through building an inclusive economy and being a solutions-focused state that builds capabilities (National Planning Commission., 2012) .The NDP acknowledges the high costs of remittances in South Africa. The NDP states that "the breakthroughs in cell phone banking have not yet extended to easing money flows in and out of Africa, or between countries"(National Planning Commission., 2012) and additionally acknowledges that increase in remittances as the largest source of net foreign inflows after FDI. However, the NDP does not specifically address the UN target of 3% nor make mention of any active steps toward reducing transaction fees,(National Planning Commission., 2012).

There is a vast amount of research conducted on remittances in the SSA region. Some studies, such as the one conducted by Ezeoha (2013) focused on the financial determinants of international remittance flows. The study was based on the existing belief that the SSA region lacks sophistication in financial systems, resulting in a greater portion of remittances passing through informal channels (Ezeoha, 2013).

There are numerous other studies supporting this view; the sophistication of financial systems of home countries supporting the remittances back home determine the volume of remittances. Firstly, Acosta et al. (2009) examined panel data of 109 countries for the period 1990-2003 and the impact of remittance inflows, financial sector development and the real exchange rate, concluding that not only do countries with more sophisticated financial sector development support more remittances through formal channels but also that remittances can be channelled into investment opportunities. Echoing the findings by Acosta et al. (2009), Owusu-Sekyere et al. (2011) conducted an investigating on the drivers of remittance inflows to the SSA region, concluding that the degree of market sophistication, or the deposit gathering ability of financial

systems and interest rate differentials are significant drivers to remittance inflows to SSA. Additionally, it was found that self-interest motives overrode the altruistic motive as a whole(Owusu-Sekyere et al., 2011). Not all studies reflect similar results. In a study conducted by Adenutsi & Ahortor (2021)to understand the macroeconomic factors that explain variations in remittance inflows to SSA, 38 SSA countries were sampled using consistent balanced panel data for the period 2000-2009. The results concluded that remittances were motivated altruistically, and highlighted the need to ensure pro-growth policies and strategic fiscal, monetary and exchange rate policy reforms in SSA.

These studies are key to understanding that the financial development of payment ecosystem between South Africa, and the SSA Region, determine the volumes of remittances. Understanding the existing infrastructure, influential players and the current remittance inflows in the region is key to understanding how this impacts remittance volumes to cost elasticity.

2.4.1 Overview of Payments Ecosystem in Africa

The payment landscape in Africa varies by region, with diverse players contributing to the ecosystem. In South Africa these players are: the Reserve / Central Banks, Banks, Regulatory Authorities and Local and International players South African Reserve Bank (2018a). The payment landscape for remittances include banks, money transfer operators and remittance service providers. The literature overwhelmingly points to banks holding the largest concentration of remittance transactions in South Africa. Certain reports monitor the progress of payments per annum, providing insight into the landscape and ecosystem.

Mastercard is a significant player in the African and South African payment markets, maintaining partnerships spanning 172 countries. As at October 2023, Mastercard highlighted that the emergence of FinTechs is a pivotal driver of Africa's financial ecosystem (Mastercard, 2023). Funding and actively investing in these start-ups has accounted for nearly $3 billion. The FinTech landscape has experienced rapid and remarkable expansion and is estimated to reach $65 billion by 2030 and is nearly a thirteen-fold increase from 2021 (Mastercard, 2023). The success of the payments sector can be attributed to increased access to mobile technology, a growing middle class, the adoption of digital payments and the emergence of FinTechs (Mastercard, 2023). Despite the progress and potential of the African continent, cash remains

the dominant mode of payment, with only 10% of payments conducted digitally on the continent.

The below is a figure describing the increase in variety of financial services over the years.

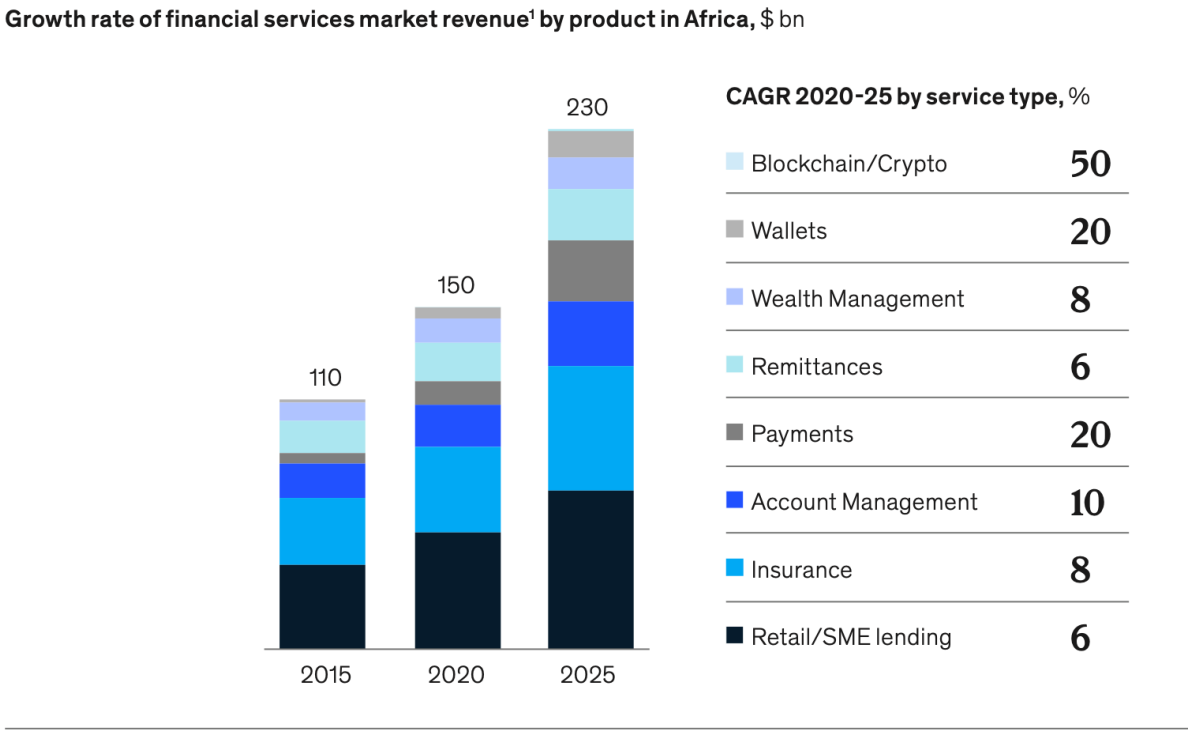


Figure 9: Growth rate of financial services market revenue according to category over period 2015-2025.

Numerous independent studies have explored trends in the payments industry on the African continent. McKinsey Global Payments Report provides insight to the changes in the industry and revealed how banks can remain abreast by leveraging emerging dynamics. Among the findings, revenue growth was recorded at double digits for the second consecutive year and in certain regions (India) experienced sustained growth. Half of the revenue reported can be attributed to interest-based revenues and 4% contraction in cash usage globally in 2022, in contrast to the tripled growth rate of electronic transactions (Bionducci et al., 2023). The EMEA witnessed growth in the double digits, excluding the Asia-Pacific region which only saw an increase of 4%. Increasing interest are the main drivers of growth, where the EMEA produced the largest margins in interest and transaction-based revenue (Bionducci et al., 2023). The large amount of revenue experienced in the EMEA region substantiates the profit potential

of the payments industry, and further substantiates the need for adequate frameworks and policies to monitor and maintain conduct, competition and innovation. Outflows of cross-border payments reached $150 trillion, increasing by 13% from the previous year and resulted in the respective revenue increasing by 17% which equates to a massive $240 billion from the previous year. However, B2B and B2C payments grew by only 10%. The report forecasted that revenue will be boosted further with the innovations in instant methods, and the increase in digital wallets which will assist the move away from cash in Brazil and Nigeria (Bionducci et al., 2023).Moreover, this forecast includes that by 2027 the cash-dominant countries will transition to instant payments (Bionducci et al., 2023).

Similarly to the above, The Boston Consulting Group (BCG) monitors the payments industry and has been reporting on trends and the market for the last two decades. The BCG report predicts that operating environments will face challenges as the macroenvironment faces volatility and a decline in valuations (Boston Consulting Group, 2023). Contrastingly to the prediction made by the McKinsey report that while the FinTech space has expanded with 5000 new entrants, the revenue growth has been forecast to contract over the next 5 years. However, the suggestion is that the participants can remain abreast by fueling innovation and creating consumer appetite that has the potential to weigh in on a pool of US $520 billion by escalating the competition amongst players. The report also commented on the progress of risk management models that are undergoing revision by regulatory bodies by being less stringent while also enforcing compliance and adherence (Boston Consulting Group, 2023).

PricewaterhouseCooper (PwC) released their payments report which navigates the global payments matrix and differentiates itself from the two reports mentioned above, by highlighting trends and industry responsiveness through survey and finally, the overall societal benefit and impact of the matrix (PWC, 2021) . The results of the survey indicated that data privacy and security are a top concern of 48% of survey respondents which was closely followed by digital identity authentication. Following closely behind, 46% of respondents selected cybersecurity and data privacy as a key concern to the question on which factors will have the most significant impact on cybersecurity strategy for the following five years (PWC, 2021).

2.4.2 Payment Landscape in South Africa and sub-Saharan Africa

As highlighted previously, on the agenda list for remittances are use cases for FinTech, the improvements in instant payment systems in Africa. In South Africa, the landscape encompasses SARB (Central Bank), BankServAfrica and the numerous FinTech players that form of the payments/remittance space. Over recent years, the number of FinTech start-ups has increased which includes payment and remittance apps (World Bank et al., 2019). BankservAfrica assumes responsibility of the Fast Payment System, alternatively known as the Rapid Payment Program (RPP), in South Africa which was launched in 2023. Colloquially referred to as PayShap, it holds monopoly as the only RPP in South Africa, and offers three core services which is 1) Instant Payments, 2) Proxy Payments and 3) Request to Pay payments (BankServAfrica, 2023).PayShap is Africa's leading Automated Clearing House (ACH) and the South African Banking industry's official Payment System Operator (PSO). PayShap assumes responsibility for instant transactions that fall below a threshold amount (BankServAfrica, 2023) . Instant Payments are defined as " payments where the transmission of the payment message and the availability of final funds to the payee occur in real time or near real time, and as near to 24 hours a day, seven days a week (24/7) as possible"(World Bank Group, 2023). Instant payments, similarly to what has been stated in IFAD and other remittance reporting groups, hold potential to drive Financial Inclusion and boost economic growth due to it being an attractive solution for domestic remittances as they allow for funds to reflect immediately. They have the potential to replace cash payments, card payments and EFTs (Bank for International Settlements et al., 2020). These instant payment systems have been mentioned by IFAD as a goal to expand upon within the remittance world, as a means to having faster, cost effective and more transparent remittances for both senders and recipients (United Nations, 2023a).

In addition to BankServAfrica, there have been improvements in the Settlement system of South Africa. The Real-Time Gross Settlement (RTGS) system of South Africa is referred to as the South African Multiple Option Settlement (SAMOS) system and is managed by SARB (South African Reserve Bank, 2024). SAMOS offers a diverse platform of payment options, ranging from domestic high-value payments, retail transition batches to bond and equity settlement obligations (South African Reserve Bank, 2024). Further information on the cooperating banks can be found in Appendix 1. In addition to SAMOS, SARB manages the operations of the SADC-RTGS or SIRESS which is The SADC Real-Time Gross Settlement

system. The SADC-RTGS/SIRESS is the regional cross-border RTGS system in the SADC region which is responsible for settling single instructions between participants basis and only in the South African Rand. The SADC-RTGS boosts and encourages trade within the SADC region by creating a link between participating financial institutions resulting in a direct positive impact on the economies and promotes financial stability (Mavhunga, 2020).

In Angola, a new law was passed regarding the Angolan Payments System which is to adapt the legal framework to facilitate the actual volume of transactions in the market. The law, Law no. 40/20 of 16 December 2020, impacts the transactions between Angola and the international markets and encourages and promotes a modern Payments System International Trade Administration (2024). As of June 2022, Western Union resumed remittance operations from Angola after an 8 year suspension in 2014 (International Trade Administration, 2024). Additionally, the 2018 investment law enables foreign investors the "right and guarantee to transfer abroad" (US Department of State, 2023a). The National Bank of Angola (BNA) expanded the base of entities responsible for the negotiation of the purchase and sale of foreign currency with commercial banks (US Department of State, 2023a) . This is through the Bloomberg FXGO platform and as of 2021, BNA considered extending this to airlines and insurance companies. As of 24 June 2022, BNA issued Directive 06/2022 limiting the monthly amount of remittances sent to a foreign country to $5000 per sender, however, inward remittances are not limited according to the directive (US Department of State, 2023a).

In contrast to Angola, Botswana has not placed any restrictions or limitations on foreign investors' ability to remit any funds that have been associated with an investment. This includes converting, transferring or repatriating said funds (US Department of State, 2023b). According to Bank for International Settlements (n.d.) report on the Payment System in Botswana, cash retains a stronghold within the payments system and a small percentage of agricultural based posts utilise cheques and some forms of bartering still existing in rural areas (Bank for International Settlements, n.d.). Botswana's payment ecosystem comprises of Commercial banks,

Aligning closely with Angola, Kenya's Foreign Investment Protection Act (FIPA) allows foreign investors the right to capital repatriation and remittance of dividends and interest to foreign investors. Foreign investors are free to convert and repatriate the proceeds of an investment after paying respective taxes and/or any principal and interest (US Department of

State, 2023d). The number of remittance providers grew between 2020-2022 from 15 to 19 providers following the operationalization of regulation in April 2013, and in 2014 The Financial action Task Force (FATF) removed Kenya from its "Watchlist" (US Department of State, 2023d). In Kenya, the Central Banks (CBK) National Payment System for 2011-2025. The NPS Vision and Strategy includes money remittance providers alongside other key industry players such as FinTech's, retailers and merchants (Central Bank of Kenya, 2021). The NPS also states that efforts will be increased to enhance remittance offerings through continued collaboration and reviewing of the East Africa Payments System (EAPS) and Regional Payments and Settlement System (REPSS) platforms, and reviewing the cost efficacy of international payments and remittances for areas of improvement (Central Bank of Kenya, 2021) . Some short term goals stated are to review the platforms at a regional and international level and medium term goals are to implement the recommendations that will enhance the payment sphere for remittances (Central Bank of Kenya, 2021).

Similar to Kenya and Angola, Malawi has not placed any restrictions on foreign investors converting, transferring or repatriating funds related to an investment however, Forex for business transactions are subject to waiting periods of several months before being accessible (US Department of State, 2023f). The Reserve Bank of Malawi (RBM) releases quarterly reports on the progress of the National Payments System.

The Central Bank of Lesotho (CBL) has not made any changes to policies related to remittances. The average time for or delay period is 30 days for remitting investment returns, provided the investor has submitted the required documentation related to the remittance (US Department of State, 2023e). CBL enforces and oversees the National Payments System which comprises of Financial Market Infrastructures (FMIs), PSPs and respective infrastructure (Central Bank of Lesotho, 2018).The FMIs are inclusive of SIRESS within the SADC region whereas the retail and instruments include remittance service (Central Bank of Lesotho, 2018). In the 2018 report, it was stated that CBL would adopt international standards applicable to remittances and other best practices that have been adopted by central banks (Central Bank of Lesotho, 2018). This is mentioned in the World Bank General Principles for International Remittances (i.e. remittances should be transparent and have consumer protection, increased efficiency, remittances should be supported by sufficient and adequate legal framework and infrastructure and governance and competitive marketing conditions should be encouraged) (Central Bank of Lesotho, 2018).

Mozambique's Central Bank released a Notice which stated that at least 30% of exports need to be converted into the local currency, but is not applicable to the scenario whereby a rent is paid in a non-Mozambican currency by a non-resident to a Mozambican (US Department of State, 2023g). Similarly to other Central banks, The Central Bank of Mozambique (BM) highlights the importance of transparency and detailed information to the sender of the remittances in the National Payments System(Banco Mocambique, 2021).

Nigeria's Nigerian Investment Promotion Commission Act of 1995 (NIPC) allows investors unrestricted transfer of dividends abroad (US Department of State, 2023h). In Nigeria, money transfers take a maximum of 48 hours, however remittances take slightly longer due to forex shortages (US Department of State, 2023h). This differs from remitting investments, where investors are required to obtain a Certificate of Capital Importation to allow them to remit investments. Since 2015, the Central Bank of Nigeria (CBN) mandated that all foreign exchange remittances be transferred through banks (US Department of State, 2023h) .The Central Bank of Nigeria's payment system started in 2007 and now has a modern NPS that comprises of a vast number of key industry players (Cooper & Esser, 2019). The current infrastructure is supported by CBN's cashless society vision by introducing the use of credit and debit cards and EFTs. The NIBSS supports cooperation and competition in the NPS. Nigeria is also hope to innovative infrastructure such as NACS, NCS, CIFT, NIP and NEFT (Cooper & Esser, 2019).

In Swaziland (Eswatini), there is no specified time limitation on remittances as SWIFT transfers require an average of one week and other electronic transfers potentially take less than one week (US Department of State, 2023c). Additionally, there are no limitations on the inflow/outflow for remittances of profits or revenue (US Department of State, 2023c). The Central Bank of Eswatini provides a detailed framework of their National Payments System which includes fostering a more enabling framework to receive remittances and drive the development of the remittance license regime through conducting research, fostering dialogue in the industry and promoting cooperation (Central Bank of Eswatini, 2021). The National Payment System also notes that there is a lack of mobile money services to complement the volume of remittances, and while mobile money is the preference of remittance-senders, the operators are not licensed to participate in the cross-border remittance ecosystem(Central Bank of Eswatini, 2021). It is noted that banks are reviewing the high costs of cross-border

remittances especially within the SADC region (Central Bank of Eswatini, 2021).Similar to Angola and Mozambique, Tanzania has not placed any restrictions on remittances for foreign investors as a means to incentivize investors (US Department of State, 2023i). This is also seen in Zambia(US Department of State, 2023j).

In Zimbabwe, foreign investors are able to remit a variety of funds such as dividends, capital appreciation and/or after-tax profits (US Department of State, 2023k). In 2010, a study was conducted on the South Africa-Zimbabwe corridor. Based on a previous study, by Beck and Peria (2009), the assumption that proximity, the large number of migrants and low share of bank participation, the fees between Zimbabwe and South Africa would be low (Kuhn von Burgsdorff, 2010). However, in 2010 the average of remittance fees between South Africa and Zimbabwe was 14%, significantly higher than the average of 10% (Kuhn von Burgsdorff, 2010). The high transaction fees is stated as being mainly the result of interconnected factors in South Africa and is supported by the fact that remittance-sending costs from South Africa to other SADC countries is significantly higher (Kuhn von Burgsdorff, 2010). Additionally, the authors stated that banks and MTOs charge a 'swift' fee regardless of the amount being remitted, resulting in the final cost being 20% of the remittance total and is the reason why documented Zimbabwean migrants choose informal routes to remit funds back home (Kuhn von Burgsdorff, 2010). Interestingly, the study stated that the cost of informal channels are not necessarily significantly cheaper than formal channels as results from a survey indicated an average around 12.3% of the total price (Kuhn von Burgsdorff, 2010). As seen in Appendix 3, postal remittances are cheaper, however due to safety concerns are not necessarily the most common and contrastingly, remittances sent via bus driver is one of the more expensive informal channels (Kuhn von Burgsdorff, 2010). In a study conducted on the remittances sent via bus driver or taxi, where 206 drivers in Johannesburg were surveyed, it was found that the speed, customer care and convenience are the main factors attracting South African – Zimbabwean remittance senders to utilising the informal channel over formal channels (Chisasa, 2014). Echoing similar findings, Nzima (2017) found that in the case of Zimbabwe the cost of formal channels were too exorbitant resulting in majority of remittances being sent informally.

2.4.3 Remittances Projects Worldwide

Project Greenback and Project Greenback 2.0 are projects that were launched by the World Bank Group. Both projects were deployed to track and calculate the cost of Remittance fees globally, through the RPW database.

Project Greenback engaged with two migrant communities. The first community engaged with are the Hondurans in Washington and Moroccans in Italy where financial education was offered. Researchers monitored behavioral changes with those remitting and recipients (World Bank, 2024).

The Bank of International Settlements (BIS) recently released the results of phase 3 of Project Nexus- which aims to consolidate the Instant Payment Systems (IPS) of multiple areas to ensure immediate cross-border payments (BIS Innovation Hub, 2024). The countries that participated are Indonesia, Malaysia, Philippines, Singapore and Thailand (BIS Innovation Hub, 2024). The Roadmap set goals that target the speed, cost, access and transparency of cross-border payments with a deadline of 2027, and specifically targeted at G20 countries and adopts the UN SDG target of 3% remittance fees for every US $ 200 (BIS Innovation Hub, 2024). With regards to the speed, the Roadmap's target is that cross-border payments should be effected within one hour of the transaction, and the remainder within one business day. Transparency, a key focus on the Roadmap, details the required information that should be available to the sender which includes information such as FX fees, costs and conversion costs and expected delivery of funds (BIS Innovation Hub, 2024). This ensures that the user is able to make an informed decision prior to finalizing the transaction. In terms of access, the goal is that end-users have at least one option for sending and receiving electronic payments such as infrastructure or provider (BIS Innovation Hub, 2024). While Project Nexus is promising, the collaborating countries – Singapore, Malaysia, Indonesia, Thailand and Philippines – have highly sophisticated payment systems and structures and fees are significantly lower than South Africa and sub-Saharan Africa at present.

2.5 Theoretical Framework: Remittance Outflows and Fees

2.5.1 Supply and Demand and Cost Elasticity

This section reviews the theoretical framework based on existing studies that explored the cost elasticity and remittance flows. These studies provide the foundational and empirical insights

into the relationship between the remittance fees and remittance flows, while also highlighting the gaps that this study seeks to address.

Based on similar studies, one in particular which investigated the cost elasticity of Remittances from Senegalese migrants in Europe by (Perregaux, (2015) , this study will consider two theories for the cost elasticity of remittances: 1) The supply and demand of remittances and, 2) The cost elasticity. The theory of Supply and Demand, an economic approach, explain elasticity and competition, both of which are applicable for this study. In any market, the price of a good or service – in this case the cost of remitting – is determined by the demand and supply in a market (Asmundson, 2010). Where prices increase, the more likely service providers are willing to produce but conversely, a consumer purchases more of a product at a lower price. Demand tends to decrease; as prices increases, consumers opt out of utilising the service. Supply and demand is explained where the demand of the remittance price meets the supply of the Remittance Service Providers at a given cost, will be at equilibrium (Perregaux, 2015). The cost elasticity is explained where a higher or lower fixed fee is charged by RSPs or transfer operators may cause a variation in the amount of funds being remitted. The variation may impact the decision of the consumer, resulting in an amendment to the amount of funds being remitted, if at all (Perregaux, 2015). It is also important to note that there may be a threshold that exists where the cost would be too great for a consumer to choose a formal transfer method, and opt for a cheaper, more informal and less reliable method (Perregaux, 2015). Furthermore, the market-clearing price, the intersection of the point at which the demand and supply are the same may exist.

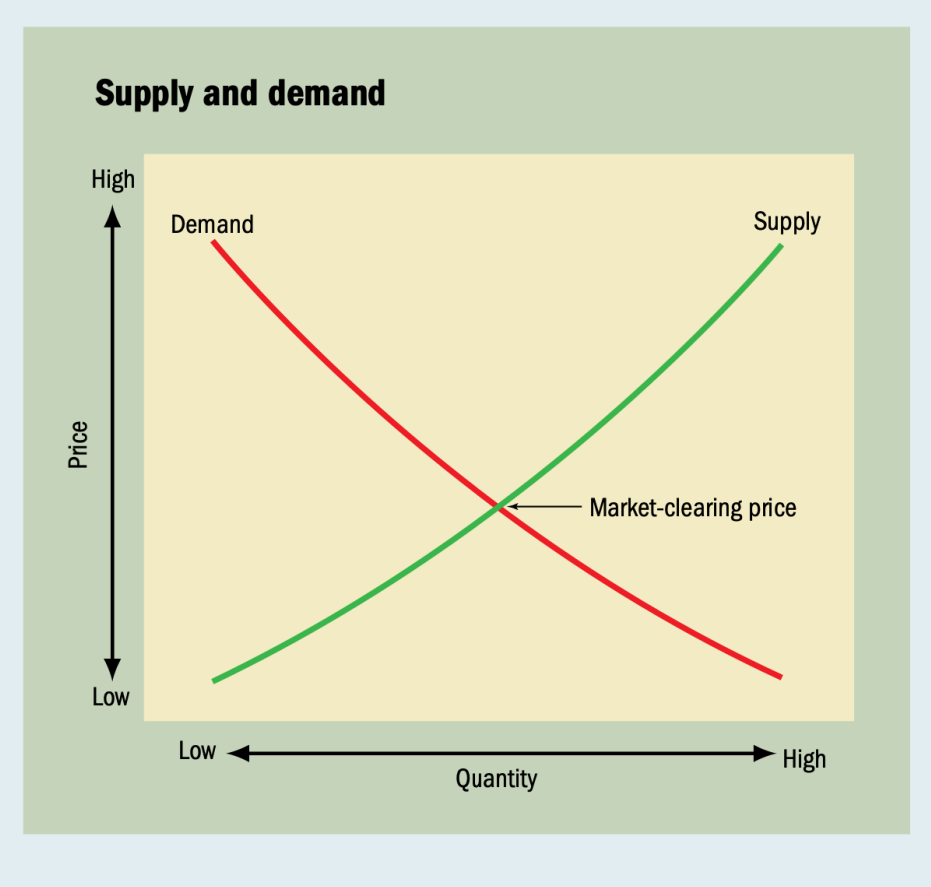


Figure 10: Supply and Demand Curves. Source: IMF Finance & Development, Asmundson (2010)

The law of demand states when the cost varies, so too does the demand i.e. the demand decreases as the cost level increases (Perregaux, 2015). With reference to remittances in this context, this may refer to the magnitude of one individual transfer, the frequency per year that funds are remitted or the average number of remittances per year. In terms of cost elasticity, remittance may behave perfectly inelastic, which means migrants do not respond to variations in price. Remittances may be relatively inelastic, meaning a one dollar increase in fee will result in less than a one dollar decrease in the amount remitted. Remittances may behave perfectly elastic, meaning a variation in one dollar price results in an oppositive but proportional change in remittances. Finally, remittances may be relatively elastic, where migrants sending remittances decrease the amount of the transaction by an amount greater than one dollar for every one dollar increase to the fee(Perregaux, 2015).

Understanding the dynamics of the cost elasticity and supply and demand theories is essential to evaluate the ability of the respective countries to achieve the UN SDG goal of 5% and eventually 3% by 2030. These theories provide a foundation upon which the policy measures can be analysed, such as the NPS Action Plan, COFI Bill and NDP. In the South African

context, these theories offer insights into how remittance costs affect migrants' behaviour. Additionally, they align with both national and international objectives which is inclusive of the reduction of remittance corridors with fees to 5% and the ultimate goal of reaching fees that are 3% by 2030.

2.6 Empirical Literature: Remittance Fees

This section reviews key empirical studies investigating the cost elasticity of remittance fees and remittance flows, focusing on studies relevant to methodology and/or to the region of South Africa and sub-Saharan Africa. These studies provide the foundational and empirical insights into the relationship between the remittance fees and remittance flows, while also highlighting the gaps that this study seeks to address.

There have been numerous studies conducted related to the elasticity of remittance costs and remittances. One of the earliest is by Gibson et al. (2006) which studied the cost elasticity of remittances costs against remittances in New Zealand and concluded that there is a negative cost elasticity amongst migrants living in New Zealand as well as concluding that a reduction in transaction costs would result in a proportionate increase in remittance volumes. The study dove deeper, by investigating the elasticity of other sub-categories of the Tongans in New Zealand, such as motive for remitting, fees and migrant demographic characteristics. In another study, which focused on Senegalese migrants in France, Italy and Spain by Perregaux (2015) echoed the findings of Gibson et al. (2006) .

Most relevant to this study are the previous studies conducted by: Kpodar & Amir Imam (2024);Beck et al. (2022a); Wahito (2018) and Perregaux (2015). The elasticity of remittances was investigated using local projection by Kpodar & Amir Imam (2024) using quarterly panel data displayed short-term positive impact on remittances however stabilize at a higher level and data suggested an absolute elasticity of greater than one. Researchers found that significant savings could be realized if fees are reduced to the target SDG goal of 3% (Kpodar & Amir Imam, 2024) . A second study conducted by Beck et al. (2022b) utilised the data of 365 corridors to explain the variation in time and region of remittance fees and found that higher transaction costs originate when the sending country is more rural, when there is lower scale or when banks / few players dominate the corridors. Additionally, there are barriers to lowering the remittance fees such as cost and risk-based constraints and market structure. Researchers

also found that lower fees are associated with stable fixed exchange rates and Internet, as opposed to cash payments (Beck et al., 2022b). In 2018, the study conducted by Wahito (2018) investigated the effect of transaction costs on remittance flows in sub-Saharan Africa and the United Kingdom which found that bank concentration and financial development have a positive and significant relationship with the remittance fees and that the higher cost of formal channels reduces the flows which infers more informal channels are utilised as an alternative. Researchers also concluded that intra-SSA corridors should be investigated as part of the sample (Wahito, 2018). The study by Perregaux (2015) investigated the cost elasticity of Senegalese migrants in Europe which confirmed the findings of previous studies and uncovered that migrants utilised MoneyGram over Western Union and that secondly, those who remit funds back through other travellers remit less and Senegalese migrants from Spain remit 10% more than those in France and Italy (Perregaux, 2015).

Despite the wealth of studies on remittances internationally and in South Africa / SSA, there are limited studies on the South African and SSA corridors. Wahito (2018) encouraged further studies on the effects of transaction costs on intra-SSA corridors. Furthermore, the linkages between the NDP, SDGs and NPS within the South African regulatory framework remain unexplored. This study builds on existing literature by focusing remittance flows between South Africa and SSA and additionally explores how policy and frameworks can impact the region achieving the target goal of 5% and eventually 3%.

2.6.1. Studies on Remittance Cost Prices and SDGs

Remittances have an impact on numerous SDGs. Specifically Goal 4 (decent work), 5 (gender equality), 8 (decent work and economic growth), 10 (reduced inequalities), 16 (peace, justice and strong institutions) and 17 (partnerships for the goals) (Akanle et al., 2022). The high remittance fees in Africa is well documented on the RPW site. However, the link between the lowering of remittance fees and SDGs is also mentioned in literature. Akanle et al. (2022) sought to understand the link between remittances and SDGs in Africa, and found that remitting funds through unauthorised channels due to high fees is a massive factor of underdevelopment. Additionally, researchers strongly recommended that stakeholders direct more concerted energies toward the lowering of remittance transfer fees as these charges deter migrants from using authorised channels (Akanle et al., 2022). These findings are similar to the findings of other researchers, such as the study by Ahmed et al. (2021b). A study that investigated the

transaction costs of 30 sending and 75 receiving remittances concluded that the decreasing of the cost of remittance, and thereby increasing remittance volume flows would have an impact in terms of reducing economic inequalities as mentioned in the SDGs and that the Governments have the ability to promote healthy competition, as enforces and as a key player in the industry(Ahmed et al., 2021b).

Numerous studies confirm the importance of remittances and the impact of remittance flows on financial development ((Acosta et al., 2009; Aggarwal et al., 2011; Bhattacharya et al., 2018; Chowdhury, 2011; Donou-Adonsou et al., 2020; Hamma, 2019; Williams, 2016)), economic growth ((Cazachevici et al., 2020; Githiga, 2014; Hamma, 2019; Kiio et al., 2014; Usman et al., 2022)) and financial inclusion all of which are included and directly impact the SDGs. In an effort to solve macroeconomic dynamics within the SSA region, Usman et al. (2022), found that remittances positively impact economic growth and that the SSA region would be able to achieve the sustainable economic growth target if remittances are formalised and enabling remittance policies for sustainable growth.

2.7 Chapter Summary

Remittances are considered a safety net for the families of migrants. With documented contribution to the economy and various other objectives such as financial inclusion to development further emphasizes the importance and societal dependency on remittance flows. The dependency is valued more so in rural areas, where remittances are used for basic necessities such as food and clothing. Additionally, the exponential growth of remittances as seen in the revenue spikes over the recent years underscores the magnitude of these cross-border financial flows. A moderate volume of studies has been conducted internationally on remittance flows and the potential benefit of a reduction, with only a small pool related to transaction costs. The remittance impact in South Africa produced a plethora of studies, particularly related to the impact on economic growth, the variations and value of macroeconomic factors on remittances and the impact on other non-financial sectors. In SSA, the policies and frameworks related to NPS of the region have showed insufficient progress with regards to actively reducing remittance costs. However, the prices of remittance fees and the influence of policy and frameworks have not been studied in South Africa resulting in an empirical research gap.

Chapter 3

Methodology

3.1 Introduction

This chapter outlines the research approach, strategy and design, population and sampling, data collection instruments, development, and data analysis including the rationale behind the selected approach. It will elaborate on the description of variables, identify the dependent and independent variables and the models for testing.

3.2 Research Approach

Due to the strong influence of remittances on financial development, economic growth and international payments for a developing country like South Africa, existing literature points to the importance of this field and enabling future studies that might drive policy, innovation, collaboration, and competition – which may impact the fees associated with remittances- as highlighted in the literature review. There is a high volume of literature on remittances, a small pool of literature on remittance fees and a smaller pool of literature on the cost elasticity of remittance fees in South Africa.

This study was approached using a quantitative research approach, which can be described as "data that are numerical or that can be converted into numbers" (Sheard, 2018:2). This is aligned with the previous studies by Beck et al. (2022a) conducted that provided initial insights and recommendations to the small pool of literature on transaction costs of remittances. In addition to the study conducted by Beck et al. (2022), this echoes the approach by other studies conducted in this field: Kpodar & Amir Imam (2024);Beck et al. (2022a); Wahito (2018); Perregaux (2015)and Gibson et al. (2006).

3.3 Research Design

3.3.1 Population and Sampling and data source

The methodology employed facilitates its aim to understand the empirical relationship between remittance fees and volume of remittances from South Africa to other sub-Saharan African countries. The empirical analysis will assist in comparative analysis the sample country: South Africa and 11 SSA nations: Angola, Botswana, Kenya, Lesotho, Mozambique, Malawi,

Nigeria, Swaziland, Tanzania, Zambia and Zimbabwe. The data source is the RPW database, by the World Bank.

The country that is the focus of this study is South Africa, and all SSA corridors with bilateral remittance data – either to or from South Africa for years 2011-2023. The 11 Sub-Saharan Africa countries are: Angola, Botswana, Kenya, Lesotho, Mozambique, Malawi, Nigeria, Swaziland, Tanzania, Zambia and Zimbabwe. The World Bank started recording the transaction fees of remittances through the RPW database since 2011. This is bilateral data that includes the fees of 377 formal corridors from MTOs such as MoneyGram and Western Union. The quantitative data was obtained from the World Bank Group database, RPW database for years 2011-2023. This is quarterly data collected, dating back to 2011, and will be calculated quarterly for this study. The RPW database covers data from 377 remittance corridors worldwide, and only includes formal remittance corridors and excludes the fees associated with informal channels.

3.3.3 Data Analysis

3.3.3.1 Regression equation

The following equations will be utilised, as per the study completed by (Kpodar & Amir Imam, 2024).

$$premit_{it} = \beta_0 + \beta_1 remitcost200_t + \beta_2 Pop_{i,t} + \beta_3 GDPPCHOME_{i,t} + \beta_4 GDPPCSA_{i,t} + \varepsilon_{it}$$

$$premit_{it} = \delta_0 + \delta_1 remitcost500_t + \delta_2 Pop_{i,t} + \delta_3 GDPPCHOME_{i,t} + \delta_4 GDPPCSA_{i,t} + \epsilon_{it}$$

Where $premit_{it}$ represent Personal remittances received in home country (% of GDP); remitcost200 is the cost of remittances for the transfer of $200 at time t; remitcost200 is the cost of remittances for the transfer of $500 to home country i at time t; Pop is the Population size of home country i at time t; GDPPC_HOME= GDP per capita of home country i at time t; GDPPC_SA is the GDP per capita of South Africa at time t.

3.3.3.2 Definition and measurement of variables

Personal Remittance: This variable refers to the personal remittances received in the home country as a percentage of the GDP. This is a measure of the size inflows are being remitted to

the migrant's home country. Previous studies conducted by Ahmed & Martinez-Zarzoso (2016) utilise GDP of the home country as a proxy for income, and found a positive statistically significant relation however, according to Freund & Spatafora (2008) GDP might not be the best proxy for income due to some individuals earning wages from the informal sector.

Remittance costs: This variable refers to the refers to the cost of remitting at two transaction levels: USD $200 and USD $500 separately, to investigate the differences in costs and cost elasticity. The expected impact on the dependent variable is negative: a remittance costs increase the total personal remittance received in the home country as a percentage of GDP will decrease. This expected impact applies to both transaction levels of USD $200 and USD $500.

Population: This variable refers to the population size of the home country and serves as a measurement of market size, or demand for remittance services of the home country. This is key to understanding the Supply and Demand theory. The expected impact on the dependent variable is positive: as the population increases (and the market size and demand) so too would the personal remittances received in the home country as a percentage of GDP.

Home country income: This variable refers to the Gross Domestic Product (GDP) per capita of the migrant's home country, where funds are remitted to, and is the net of value of goods and services produced by the country as a means of measuring the economy. This reflects the economic standpoint of households in the home country and how dependent (i.e. demand) they are on these remittances. This aligns with the studies conducted by (Freund & Spatafora, 2008; Wahito, 2018). The expected impact on the dependent variable is negative: as the GDP of the migrant's home country increases (i.e. the demand for remittances decreases, and therefore the reliance thereof) so too would the personal remittances received in the home country as a percentage of GDP. Numerous previous studies have found significant relationships between remittance flows and GDP of the home country such as the studies conducted by Ahmed & Martinez-Zarzoso (2016).

SA Income: This variable refers to the Gross Domestic Product (GDP) of South Africa, as the host country, and is representative of the migrants income levels. This reflects the financial ability and capacity of migrants in South Africa to send remittances back to home countries. The expected impact on the dependent variable is positive: as the GDP per capita of South

Africa increase, the assumption being that supply of remittance has increased, meaning the total personal remittances received in the home country as a percentage of GDP also increases as there are more funds that can be sent home. Previous studies have utilised the GDP of the host country to indicate, such as the study conducted by Abbas et al. (2017) and Mukadi (2016). However, according to Freund & Spatafora (2008) GDP per capita may not be the optimal proxy due to some migrants earning incomes originating from the informal sector.

Table 3.1: Summary of variables

	Symbol		Expected sign
Dependent variable			
Personal Remittance	$premit$	Personal remittances received in home country (% of GDP)	
Independent variable			
Remittance costs	$remitcost200$	The cost of remittances for the transfer of $200	Negative (-)
	$remitcost500$	The cost of remittances for the transfer of $500	Negative (-)
Control variables			
Population	POP	the Population size of home country	Positive (+)
Home country income	$GDPPCHOME$	GDP per capita of home country	Negative (-) or Neutral (0)
Host country (SA) Income	$GDPPC\_SA$	GDP per capita of South Africa	Positive (+)

3.3.3.3. Estimation Approach

The choice of model utilised is guided by the theoretical approach and data obtained from RPW, and selecting the most appropriate model is vital for accurate estimation in understanding the relationship between remittance costs and remittance flows . The Ordinary Least Squares (OLS) Regression serves as a foundation for understanding the relationship between remittance costs and remittance flows between South Africa and SSA countries(Edwin et al., 2014). OLS is utilized due to the attractive characteristic of its simplicity and efficiency, however, is unable to cater to unobserved heterogeneity caused by country-specific factors. OLS-PCSE is utilized when observing multiple countries over a period of time, for this study it is 11 SSA countries for 2011-2023, and adjusts for panel heteroscedasticity, contemporaneous correlation while also allowing autocorrelation resulting in more accurate standard errors.

Random Effects (RE) and Fixed Effects (FE) are two methods in which Time-Series Cross-Sectional and Panel Data can be modelled as is the case with this study. The more commonly

used / default is the Fixed Effect model, is the more utilised model, however, it is debatable that the RE model is able to provide the what the FE model offers and more(Bell & Jones, 2015) . The differentiation between the RE model and FE model is the classification of a variable as fixed or random effects. Where the interest lies in the statistical comparison of different levels of a variable, the RE model is utilised. However, where interest is focused on the different levels is drawn from larger population of levels, and generalisation is made to all possible levels (Bell & Jones, 2015) . In this study, the levels are the transaction levels of USD $200 and $500, for sample countries South Africa and SSA. The appropriateness of utilising RE is that the interest lies in the variance across the different levels. Furthermore, the FE model is unable to provide context to time-invariant variables, thus limiting the understanding of country-specific influences. The RE model caters to time-invariant variables, while still considering the influences between and within country corridors (Bell & Jones, 2015).

The Hausman Test (χ^2) is utilised to aid in the decision making between using the RE or FE models, and test whether the Random Effects model is valid. In the event that exogeneity of unobserved effects fails to reject, the RE model is favoured (Amini et al., 2012) . Conversely, if the unobserved effect is drawn from a random population, the FE model will yield more efficient results (Amini et al., 2012).The Heteroskedasticity Test (Hettest χ^2) tests for the presence of heteroskedasticity as an additional robustness check.

3.3.4 Constraints and Limitations

One of the constraints is the availability of data is limited to countries. The second constraint is that the RPW website is dependent on the data sourcing capability of the country, meaning if a country does not enforce or place reliance on retrieving accurate and updated information from RSPs in both informal and formal sectors then the data is unavailable for that country. Additionally, only includes the prices of remittances through formal channels and excludes the prices of informal channels. Another limitation is that the remittance fees are reported by the RPW website as per $200 and $500 only. Finally, the last constraint is that only 11 countries are included in the sample from the sub-Saharan African countries, out of 50 countries in total.

3.4 Chapter Summary

The OLS model is utilised as a benchmark model to explain the relationship between remittances and remittance inflows due to its simplicity and efficiency. The RE model is preferred over the FE model, as it considers time-invariant variables which explains the influences between countries, or intra-country behaviour of remittances. Robustness checks include the Hausman test, the GLS model, and Hettest for heteroskedasticity.

Chapter 4

Discussion of Findings

4.1 Introduction

This chapter presents the findings from the empirical analysis of the cost elasticity of remittance prices and the impact of remittance costs on remittance flows between South Africa and sub-Saharan African countries from 2011 to 2023. The first section provides an overview of the descriptive statistics while the second and third sections examines the correlation properties of the variables and discussion of the regression analysis, and finally a discussion on results.

4.2 Descriptive Statistics

The descriptive statistics of the variables are presented in Table 2 below. The Personal Remittances, % of GDP mean is 4.14, indicating that on average remittances account for 4.14% of GDP across the countries in the dataset. The median is 1.83 which indicates that half of the countries have remittances contributing less than 1.83% to their respective GDPs, which also highlights that some countries have much higher values. These values represent the amount of funds received. The standard deviation is 6.19 indicating a high variation in remittances as a percentage of GDP, suggesting that the role of remittances and purposes thereof may differ across countries. The Min is 0.000183 which means the lowest value is almost zero suggesting that some countries have little to no reliance or dependence on remittances, further substantiating the different role remittances plays. Additionally, the maximum is 25.17 which indicates remittances form a significant part of GDP for specific countries and again reiterates the diverse role remittances plays. The sample size, N, is 143 which is representative of 143 observations indicating good coverage across the countries in the dataset. The combination of the high standard deviation, the significant gap between the mean and median suggests that while a minority of countries are heavily dependent on remittances, the majority of the SSA receive, and rely, on lower levels of remittances.

The mean for Remittance Cost $200 is 16.40 which means that the average cost associated with sending $200 remittances from South Africa to a sub-Saharan African country is 16.4%. This

is significantly higher than the minimum target of 5% and the SDG target of 3% by 2030. The median is 16.39, which is close to the mean, indicating a symmetric distribution. The standard deviation is 3.16 indicating a moderate variation in the cost of sending remittances with some countries being significantly cheaper or more expensive. The minimum value is 5.66, meaning the lowest cost associated with sending $200 is 5.66% and the maximum value is 24.13, or 24.13% for sending $200, which shows significant variation in the costs associated with sending $200 due to the wider range of fees. The sample size, N, is 130 observations for this variable which provides sufficient coverage. The results for remittance costs for sending $200 show a consistent spread, with majority of the countries clustering around the mean. However, there is a notable range from 4.66% to 24.13% showing potential barriers to remittances affordability. These barriers have been noted in other studies specifically from International Fund for Agricultural Development (2023).

The Remittance Cost for $500 mean is 9.57% meaning the costs of sending $500 is 9.57% on average and the median is 9.46% which is very close to the mean resulting in a normal distribution. The standard deviation is 2.07 which indicates a lower variability compared to the remittance costs associated with sending $200 and also shows a smaller range in costs for larger amounts. However, this average remains significantly larger than the minimum SDG target of 5% and the target of 3% for 2030. The minimum value is 1.86, which means the lowest or cheapest cost for sending $500 is 1.86% and maximum value (the most expensive) is 18.55%, which indicates a narrower range in comparison to the costs associated with sending $200. The sample size, N, is 130 observations for this variable which provides sufficient coverage. The comparison between the costs associated with remitting $200 and $500 respectively, suggests the presence of economies of scale in remittance costs as larger amounts are cheaper to send compared to smaller values. This aligns with the findings of Wahito (2018) who concluded that service providers offer reduced rates in order to boost volumes, leveraging the Theory of Demand and Supply. The costs associated with remittances decrease for larger remitted amounts, which may indicate potential savings. This is also aligned with the findings of Kpodar & Amir Imam (2024) which indicated significant savings if fees are reduced.

The remittance costs for both $200 and $500 vary in standard deviation, with the standard deviation for $200 being greater than the standard deviation for $500. This high variation

indicates that there are shifts in demand due to how widely varied costs, and aligns with the supply and demand theory, specifically Law of Demand.

The Population mean is 37.6 million which is the average population size across the dataset, and median is 19.4 million. This results in a positively skewed distribution, due to the fact that the mean is double the median, where the minority of countries with very large populations significantly raises the average. The standard deviation is 53 million which is very high and highlights significant variation in population sizes across the countries in the dataset. The minimum value for the smallest country in the dataset is 1 105 371 and the max value is 224 million which is the size of the largest country. The sample size, N, is 143 observations or 143 countries which indicates good coverage. The skewed population distribution suggests that a small number of densely populated countries exert a disproportionate influence on trends in remittance and economic data, further highlighting the importance of including population size in the dataset when analysing remittance patterns.

The GDP Per Capita of the Home Country mean is $2,175.86 and the median is $1,456.90. The median is lower than the mean which indicates that the majority of countries have lower GDP per capita and only a few have significantly higher GDP per capita which elevates the average. The standard deviation is $1,817.42 which indicates significant variation in the GDP per Capita variable, which speaks to diverse and volatile economic conditions across the countries. The minimum value per capita is $435.76 and max is $7,726.11 which further substantiates the wide economic disparity and possible volatility of economic conditions across the countries in the dataset. The sample size, N, is 143 observations which provides sufficient coverage. This positively skewed distribution places emphasis on the economic inequalities within the region and the potential influence on remittance flows and associated variables.

The GDP per capita of South Africa's mean is $6,892.95 and a very close median value of $6,766.48 which indicates a symmetric distribution. The standard deviation is 835.46 which is a low variation in GDP per capita over the observed period which suggests stable economic conditions. The minimum value is $5,735.07 and maximum value is $8,737.04 and the sample size,N, is 143 observations which provides sufficient coverage. This data shows that South Africa's GDP per Capita shows a more consistent economic trend with less variability compared to the home countries' GDP per capita, underscoring relatively stable economic performance.

Table 3: Descriptive Statistics Results

Stats	Mean	Median	SD	Min	Max	N
PREMIT	4.141798	1.83254	6.185234	0.000183	25.17378	143
REMIT200	16.39895	16.3944	3.157323	5.6597	24.1251	130
REMIT500	9.572846	9.4642	2.070763	1.8581	18.5456	130
POP.	3.76E+07	1.94E+07	5.30E+07	1105371	2.24E+08	143
GDPPC_HOME	2,175.858	1456.902	1817.417	435.761	7726.111	143
GDPPER_SA	6,892.948	6766.481	835.4633	5735.067	8737.041	143

Note: PREMIT=Personal remittances, received (% of GDP); Remitcost2= REM total cost %($200); Remitcost5=REM Total cost % ($500); Pop=Population; GDPPC_HOME= GDP per capita of home country; GDPPC_SA= GDP per capita of South Africa. Source: Authors Results

4.3 Correlation results

The correlation results are presented in Table 3 below. The correlation coefficient between lpremit and lremitcost2 is -0.3840 with a p-value of 0.0000 which indicates a moderate negative correlation, suggesting that as remittance costs increase, remittance inflows tend to decrease. The relationship is statistically significant (p-value less than 0.05). The correlation coefficient between lpremit and lremitcost500 is -0.3148 with a p value of 0.0003 indicating a moderate negative and statistically significant relationship, which confirms that remittance flows are cost-sensitive even for the larger transaction level of $500. The correlation between lpremit and lpop resulted in a correlation coefficient of -0.1063 with a p value of 0.2066, indicating a weak negative correlation, and the p-value indicates that this relationship is statistically insignificant as the p value greater than 0.05. The correlation between lpremit and lgdppc_home results in a correlation coefficient that is -0.3024 with a p value of 0.0002, indicating a moderate negative and statistically significant relationship between remittance inflows and GDP per capita in the home country. The correlation between lpremit and lgdppc_SA results in a correlation coefficient that is -0.0579 with a p value of 0.4923 which suggests a very weak and statistically insignificant relationship between remittance inflows and South Africa's GDP per capita. The correlation between lremitcost2 and lgdppc_home results in a correlation coefficient of 0.1891 with a p-value of 0.0312, indicating a weak positive, and statistically significant relationship between remittance costs and the GDP per capita of the home country. The correlation between lremitcost2 and lgdppc_SA results in a correlation coefficient of 0.2816 with a p-value of 0.0012, showing a moderate positive, and statistically significant relationship between remittance costs and South Africa's GDP per capita.

Table 4: Correlation Results

	1	2	3	4	5	6
1. PREMIT	1.0000					
2. REMITCOST200	-0.3840	1.0000				
	(0.0000)					
3. REMITCOST500	-0.3148	0.8025	1.0000			
	(0.0003)	(0.0000)				
4.LPOP	-0.1063	-0.1704	0.1372	1.0000		
	(0.2066)	(0.0526)	(0.1195)			
5.LGDPPC_HOME	-0.3024	0.1891	-0.0035	-0.3460	1.0000	
	(0.0002)	(0.0312)	(0.9681)	(0.0000)		
6.LGDPPC_SA	-0.0579	0.2816	0.2202	-0.0351	0.0739	1.0000
	(0.4923)	(0.0012)	(0.0118)	(0.6769)	(0.3801)	

Note: REMITCOST200= Natural logarithm of REM Total Cost % ($200) ; REMITCOST500=Natural logarithm of REM Total Cost % ($500) ; POP=Natural logarithm of population; LGDPPC_HOME= Natural logarithm of GDP per capita of home country; LGDPPC_SA= Natural logarithm of GDP per capita of South Africa. Source: Authors Results

There is a significant negative relationship between remittance costs and remittance inflows, in other words, as the remittance cost increases, the inflows decreases due to remitters being less likely to remit. This supports the Law of Demand. The correlation results indicate a negative relationship between remittance costs and volumes (-0.384, $p<0.01$) which is consistent with cost elasticity theory. The GDP per capita of the home country is negatively associated with remittance inflows, suggesting that higher income in the home country might reduce reliance on remittances or may suggest that countries with higher income are able to tolerate higher costs, influencing the equilibrium point between supply and demand. This was referred to as the market-clearing price (Asmundson, 2010) in Chapter 2. Remittance costs are positively associated with GDP per capita in both the home country and South Africa, indicating that higher income levels may coincide with higher remittance costs. Population has a weak and statistically insignificant relationship with the other variables, suggesting it has little to no influence on remittance patterns.

4.4 Regression results

The regression results are summarized in Table 4. The constant represents the expected value of the dependent variable when all independent variables are equal to zero. This is statistically significant in all models (in both OLS-PCSE and Random Effects) which indicates that even when the independent variables are accounted for, there is a significant baseline effect. For the Random Effects models, the R-squared values of 0.3619 (Model 1) and 0.3023 (Model 2),

indicates that around 30-36% of the variability is explained by the model. In comparison, the OLS-PCSE models, the R squared values observed are lower (0.2972 for Model 1 and 0.1931 for Model 2) which suggests that there is a weaker ability to explain compared to Random Effects. The Wald χ^2 indicates the overall significance of the model. It is significant at 1% ($p < 0.01$) for all models, suggesting the models are statistically valid.

The Hausman Test (χ^2) tests whether the Random Effects model is appropriate. The high p-values (0.6244 and 0.8474) indicate that the Random Effects model is not significantly different from the Fixed Effects model, justifying the use of Random Effects. The Heteroskedasticity Test (Hettest χ^2) tests for the presence of heteroskedasticity. The significant results ($p < 0.01$) suggest heteroskedasticity is present, making the use of robust standard errors (as in OLS-PCSE) appropriate. Autocorrelation (AR(1): F) tests for first-order autocorrelation. The significant ($p < 0.01$), indicating the presence of autocorrelation, which justifies using models that account for this (e.g., OLS-PCSE).

Both $200 and $500 remittance costs show a significant negative impact on the dependent variable in the Random Effects models, with the impact being stronger for $200. However, the OLS-PCSE models suggest a weaker relationship. Population and GDP per capita in the home country consistently show negative effects on the dependent variable, with more robust results in the Random Effects models. The GDP per capita of South Africa is only significant in the OLS-PCSE models, suggesting some sensitivity to model specification. Additionally, there is a strong correlation between the REMITCOST200 and REMITCOST500, which shows that the trends for sending $200 and $500 exhibit movement together, which further implies that the any policy intervention will impact both transaction levels.

The coefficients of the costs of remittances (lremitcost2 and lremitcost2) are observed to be negative but significance is only observed in the REM estimations at 1%. The estimated coefficients indicates that for every 1% increase in the costs of remitting $200 decreases personal remittances by 3.73% while the cost of remitting $500 decreases personal remittances by 2.06%. These findings implies that an increase in cost deters consumers from remitting funds back home, additionally, that there are less savings to the migrant's home country which aligns with the findings of Beck et al. (2022b). Furthermore, the coefficients may present potential thresholds. As mentioned in previous study by Perregaux (2015), the corridors may present certain thresholds which is seen in these results. The significant negative coefficients

suggest a threshold where remittance costs become prohibitive, at which point remitters opt for informal channels over formal channels as suggested by the Supply and Demand model.

In the Random effects model (Model 1) the coefficient for lpop is -0.6092, significant at the 1% level. This means that as the population increases by 1%, the dependent variable decreases by 0.61% i.e. a 1% increase in population is associated with a 0.61% decrease in the dependent variable. This suggests that larger populations are associated with lower levels of the personal remittances. Contrastingly, the OLS-PCSE estimate for model 1 is -0.2578 which is smaller and insignificant. Comparing to model 1, the Random Effects (Model 2) the lpop coefficient is -0.5003 and significant at 1%. Which means that as the population increases by 1%, the dependent variable decreases by 0.5%, similar to model 1 but with a smaller impact. The OLS-PCSE coefficient is -0.0666, indicating weak evidence of a relationship.

For the home country GDP per Capita, the Random Effects (Model 1) coefficient is -1.184, and significant at 1%, indicating that a 1% increase in home country's GDP per capital results in a 1.18% decrease in the dependent variable which means wealthier home countries are associated with lower values of the dependent variable. In the OLS-PCSE (Model 1) the coefficient is -0.6070 which is smaller and only significant at 10% indicating a weaker and still negative relationship. For Model 2, the Random Effects coefficient is -1.2936, and is still significant at 1%, which indicates a slightly larger negative effect compared to Model 1 and the OLS-PCSE (Model 2) coefficient is -0.3567 is not statistically significant.

For South Africa's GDP per Capita, the Random Effects (Model 1) coefficient is -2.5532 but not statistically significant. Contrastingly, the OLS-PCSE (Model 1) coefficient is -3.3016 and is significant at 1% which suggests that a 1% increase in South Africa's GDP per capita is associated with a 3.30% decrease in the dependent variable. Similarly, in Model 2, The Random Effects coefficient is -3.0080 and is not statistically significant which reinforces the consistency of this effect in the OLS-PCSE models. Under the OLS-PCSE approach, the higher GDP per Capita is associated more strongly with lower levels of the dependent variable whereas Random Effects does not provide evidence that is strong enough to corroborate and confirm this relationship.

Table 5: Regression Results

	Random Effects		OLS-PCSE		Random Effects		OLS-PCSE	
	Coefficient	std. err.	Coefficient	Std. err.	Coefficient	std. err.	Coefficient	Std. err.
Constant	51.4328**	22.6296	39.5556***	10.2458	48.8211**	24.6822	33.6759***	11.8357
LREMITCOST2	-3.7268***	0.7871	-0.5528	0.3773				
LREMITCOST5					-2.0607***	0.5794	-0.2914	0.2913
LPOP	-0.6092***	0.1577	-0.2578	0.2347	-0.5003***	0.1591	-0.0666	0.3652
LGDPPC_HOME	-1.1842***	0.2310	-0.6070*	0.3116	-1.2936***	0.2480	-0.3567	0.3289
LGDPPC_SA	-2.5532	2.5293	-3.3016***	0.9881	-3.0080	2.6819	-3.3035***	0.9490
Year dummy?	Yes		Yes		Yes		Yes	
R-squared	0.3619		0.2972		0.3023		0.1931	
Wald χ^2	59.68***		34.37***		69.88***		36.79***	
Hausmanχ^2	12.71				9.54			
Prob > χ^2	0.6244				0.8474			
Hettest χ^2	21.82***				17.21***			
AR(1): F	46.498***				50.236***			
Countries	11		11		11		11	
Observations	130		130		130		130	

Note: lremitcost2=Natural logarithm REM Total Cost % ($200) ; lremitcost5=Natural logarithm REM Total cost % ($500); lpop=Natural logarithm of population; lgdppc_home= Natural logarithm of GDP per capita of home country; lgdppc_SA= Natural logarithm of GDP per capita of South Africa. ***, ** and * denote significance at 1%, 5% and 10% respectively. Source: Authors Results

4.5 Discussion

The impact of Remittance Costs, indicated by the negative coefficients for both lremitcost2 and lremitcost5 in the regression models highlight a clear inverse relationship between remittance costs and remittance volumes, which suggests cost-sensitivity of remitters. The results of the moderate negative coefficient (-0.384) display inelastic demand of remittances, while remittance inflows decrease as price increases, it is not a drastic decline which may further suggest the necessity of remittances due to the purposes of what they are used for such as food, clothing and other basic necessities to withstand exorbitant fees or increases. The Random Effects models show a stronger and more significant relationship compared to the OLS-PCSE models. This difference may point to the relevance of accounting for unobserved heterogeneity(differences between countries) when studying remittance costs.

The significant negative relationship between the Population and dependent variable, especially in the Random Effects model, indicates that larger populations are associated with lower remittance flows, potentially as a result of a dilution effect, explained where larger populations have a corresponding larger remittance base in their home country, resulting in the average remittance received per person being smaller. In the OLS-PCSE models, population does not impose any significant influence, indicating the impact may be more varied and country-specific. In this case, this is better explained by Random Effects.

The GDP per Capita of Home Countries shows a consistent and significant negative relationship with remittance flows in the Random Effects models. The implication thereof is that an more advanced economic development in the home country, reduces the reliance on remittances. This is most likely due to improved economic conditions decreasing the dependency. The GDP per Capita of South Africa shows significance only in the OLS-PCSE models, which implies that the economic conditions of the host country influences remittance behaviour. However, this impact might be a result of the specifications of the model.

The high standard deviations for variables like population and GDP per capita suggest that there are large variations across the countries in the dataset, contributing to the observed relationships. The mean values for remittance costs are notably high, especially for smaller remittance amounts ($200), which aligns with the observed sensitivity to costs. Personal remittances as a percentage of GDP vary significantly, suggesting that there are different levels of dependency on remittance across the SSA countries. This may assist with the explanation

for the heterogeneity in remittance behaviours in the regression models. There is a moderate negative correlation between lremitcost2 and lpremit, indicating that higher remittance costs are associated with lower remittance being received, which aligns and supports the regression findings. The negative correlation between lgdppc_home and lpremit which further substantiates the regression result that countries with higher GDP per capita are less reliant on remittances. The weak, and insignificant correlations observed between the population and other variables suggest that population may have more nuanced effects on remittance behaviours resulting in the mixed results observed in the regression models.

The policy implications that are presented through these findings are related to both supply-side barriers and demand-side behaviour. These findings, particularly the large range of fees associated with both $200 and $500 and the variation of costs, support the need for frameworks such as NPS, COFI and NDP to address the lowering of fees to 5% and eventually the target goal of 3%. Lower costs would enhance the balance between the supply and demand more effectively which would assist with encouraging the formalisation of remittance channels and the increased usage thereof. The demand-side behaviour of consumers is impacted when high remittance costs disrupt the equilibrium and deter consumers from using formal channels thereby reducing demand. Policy-makers need to address these barriers to meet the demand at a suitable and sustainable price point. Additionally, policy-makers need more robust involvement in fostering competition and innovation to lower the wide range of fees being charged and variation for both $200 and $500 in order to meet the SDG 10c target by 2030.

Chapter 5

Conclusions and Recommendations

5.1 Introduction

This chapter presents the conclusion and recommendations from the empirical analysis of the cost elasticity of remittance prices between South Africa and sub-Saharan African countries from 2011 to 2023. The first section provides an overview of the study and its conclusion, while the second section examines the summary and conclusion, the third section explores policy recommendation and the fourth concludes the study with recommendations of avenues for future research.

5.2 Summary and conclusions

The empirical analysis confirms that remittance flows are highly sensitive to costs in the SSA region, especially for smaller amounts like $200. Reducing the cost of remittance may result in higher remittance inflows, aligning with global and regional policy objectives to increase and enhance financial inclusion and economic growth and stability. This supports and aligns with the aims of Vision 2025 which aims to enhance financial inclusion through a world-class payment system that is efficient and secure. Lowering remittance costs has a multi-layered impact with far-reaching benefits as it supports financial inclusion (a key component of South Africa's National Development Plan) but also aligns with global targets like SDG 10, which aims to reduce inequalities, and SDG 1, focused on poverty reduction. Highlighting financial accessibility and inclusion aligns with the goals of Vision 2025 which prioritizes cost-effectiveness, fostering healthy competition and enhancing consumer protection in the South African payments landscape and remittance ecosystem. The findings suggest that as home countries experience economic growth, as measured by the GDP, the dependency on remittances decreases, reflecting a positive shift towards economic stability. This aligns with the objectives delineated in South Africa's NDP, which aims to stimulate economic growth and development and address SDGs such as reduced poverty and job creation. Within the NDP, are market conduct policies such as the COFI Act that aims to strengthen the financial sector's integrity, transparency, conduct and competition, further contributing to both the NPS' and NDP's targets which ultimately benefit consumers and enhances resilience in line with the SDGs. Finally, the economic conditions of the host country (or remittance-sending countries,

such as South Africa) is a key factor that influences the overall landscape and stability of the remittance-receiving countries.

Vision 2025, the NDP and the NPS highlight the significant importance and impact of a safe, efficient, and inclusive payment system that supports the entire ecosystem from consumers to businesses and governments. Strengthening the remittance ecosystem and the payments landscape in South Africa requires the continued commitment and contribution of all key stakeholders to ensure risks are mitigated, competition is healthy, customers are treated fairly and policies and frameworks support innovation. Exploring and supporting technological innovation through investment will unlock the potential of use cases which can improve financial inclusion but additionally, contribute to broader development goals in South Africa. Case study results from remittance projects such as Project Greenback and the testing of Rapid Payment Programs or Fast Payments can be adopted and tested within the South African / sub-Saharan African context for feasibility. These advancements will also support the SDGs by promoting financial literacy, enhancing digital financial services, and building a more inclusive economy. They are crucial for meeting the global targets of SDG 8 (decent work and economic growth) and SDG 9 (industry, innovation, and infrastructure).

5.3 Policy recommendations

The results emphasize the need for targeted policies that address remittance costs, which are crucial for achieving the financial inclusion goals outlined in Vision 2025, the NDP, and the SDGs. In particular, reducing the costs associated with sending remittances would promote economic development in lower-income countries, helping to achieve SDG 1 (poverty reduction), SDG 8 (economic growth), and SDG 10 (reduced inequality).

The reform and regulatory changes through the COFI Act should be geared toward lowering barriers to entry in the financial sector, and improving competition amongst service providers and streamlining the proliferation of apps for enhanced consumer choice. Additionally, through the COFI Act and in conjunction with the NPS, technological innovation must be fostered to ensure that the goals of the NPS, NDP and SDGs are met by their respective target deadline. Furthermore, this will ensure that systems are cost-effective, user-friendly, the product offering meets the needs of the remittance market and improves financial inclusion.

The two theories mentioned, Cost Elasticity and Supply and Demand dynamics support and validate the need for stakeholders including policymakers, key players, financial institutions

and non-financial institutions to reduce remittance fees through ensuring fair competition, enhancing efficiency in systems and increasing accessibility. Through the actionable insights provided through this study, the broader agenda of SDG 10c can be realised, which is financial inclusion, economic growth and financial development.

5.4 Avenues for future research

Future research should explore the country-specific factors impacting remittance behaviour including, political stability, regulatory environments, the potential applications and performance of digital financial services which all impact broader societal objectives such as financial inclusion. By aligning the research with the objectives provided in the NPS, NDP and Vision 2025, policy makers, regulatory authorities and other key industry players can refine the strategies required to create an inclusive, robust financial ecosystem and a world-class payment system. Additionally, informal channels and a greater sample of countries within the sub-Saharan African region should be studied with regards to cost elasticity.

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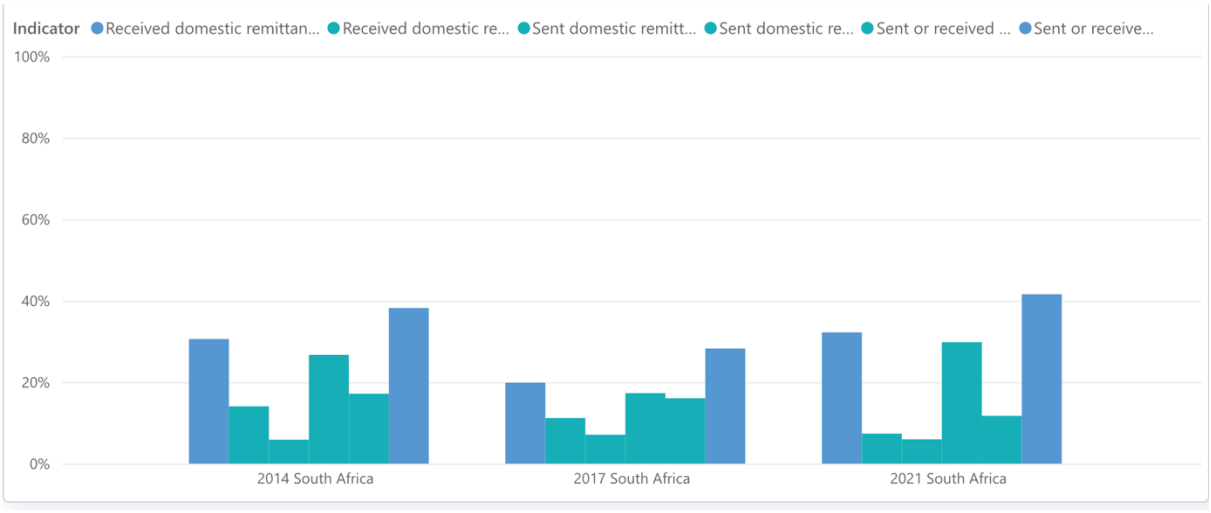
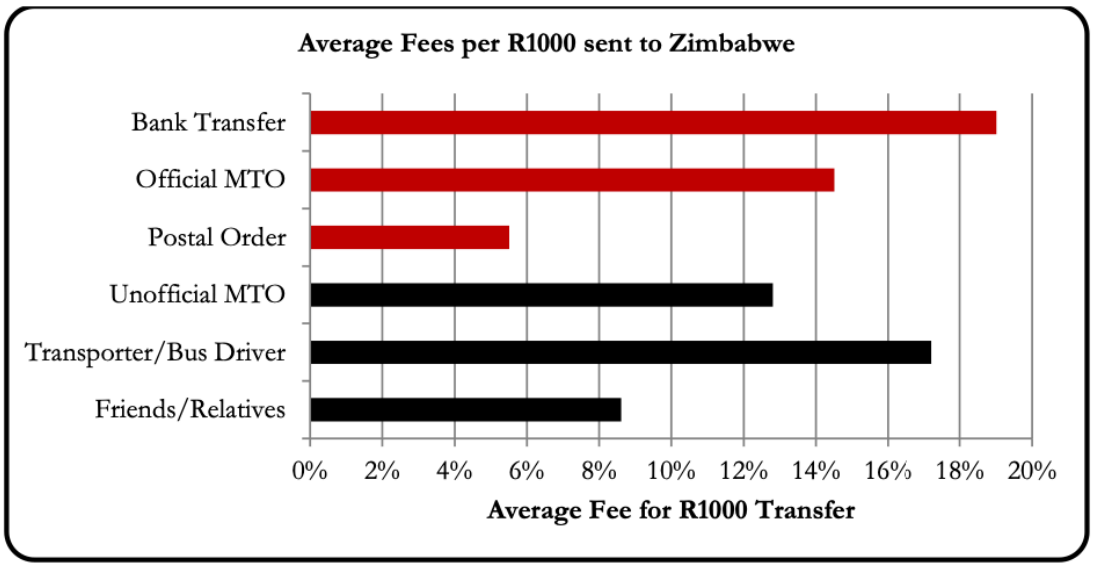
APPENDIX

Settlement system participants		
ABSA Bank Limited	CLS Bank International	Sasfin Bank Limited
Access Bank (South Africa) Limited	Discovery Bank Limited	SADC Integrated Regional Bank
African Bank Limited	Finbond Mutual Bank	Standard Chartered Bank - Johannesburg Branch
Albaraka Bank Limited	FirstRand Bank Limited	State Bank of India
Bank of China Limited Johannesburg Branch	Grindrod Bank Limited	The Standard Bank of South Africa Limited
Bank Zero Mutual Bank	Habib Overseas Bank Limited	The South African Reserve Bank
Bidvest Bank Limited	HBZ Bank Limited	Tyme Bank Limited
BNP Paribas SA	HSBC Bank plc - Johannesburg Branch	UBank Limited
Capitec Bank Limited	Investec Bank Limited	VBS Mutual Bank
China Construction Bank Corporation Johannesburg Branch	J.P. Morgan Chase Bank, N.A. (Johannesburg Branch)	
Citibank N.A	Nedbank Limited	

Appendix 2: Participating banks in SAMOS system



Appendix 1: Remittances in South Africa for years 2014, 2017 and 2021



Appendix 3: Graph 1: Cost of Remittances Channels in South Africa. Source: Kuhn von Burgsdorff (2010)