

**THE MAGNITUDE OF THE INFORMAL REMITTANCES FLOW TO  
KENYA: AN AUGMENTED GRAVITY MODEL APPROACH**

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**MARCH, 2025.**

## DECLARATION

This research project paper is my original work and has not been presented for any award in any university.

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## **DEDICATION**

*To Zoey & Leo.*

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## **LIST OF ABBREVIATIONS**

ADF	Augmented Dickey-Fuller
BOP	Balance of Payments
CBK	Central Bank of Kenya
CPIA	Country Policy and Institutional Assessment
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GFC	Global Financial Crisis
IOM	The International Organization for Migration
IMF	The International Monetary Fund
LMICs	Low- and Middle-Income Countries
MTOs	Money Transfer Operators
ODA	Official Development Assistance

## OPERATIONAL DEFINITION OF TERMS

<b>Formal Remittances</b>	Monetary transfers through official channels such as banks and Money Transfer Operators.
<b>Informal Channel</b>	Means used to transfer money between countries, often outside the formal financial system.
<b>Informal Remittances</b>	Monetary transfers through unofficial channels, which bypass the formal financial system
<b>Formal Channel</b>	A registered and regulated institution authorized to transfer money across borders.
<b>Home Country</b>	The country of origin of a migrant worker.
<b>Host Country</b>	The country where a migrant worker is currently residing and working.
<b>Magnitude</b>	Refers to the quantifiable size or value of the money migrants send back to their home countries.
<b>Migrant</b>	A person who moves from their home country to another country with the intention of staying for a specific period primarily for work purposes.
<b>Remittance</b>	Monetary transfers that a migrant makes to the country of origin.

## ABSTRACT

Global remittances reached an estimated \$860 billion, with Low and Middle-Income Countries receiving over \$669 billion in 2023. Despite being outdone by Official Development Assistance, remittances are a much larger financial boost for developing countries compared to Foreign Direct Investments. However, high transfer costs and the use of informal channels hinder the full impact. In Kenya remittances are now a proper source of external finances. Kenya received \$4.19 billion in form of diaspora remittances. Over the years, remittances are proving to be more stable, well diversified and are promising more growth relative to Foreign Direct Investments, Official Development Assistance, private capital and exports. On the micro scale the remittances are helping achieve Kenya's developmental goals of having a globally competitive human resource and an adequately and decently housed population as outlined in the country's development blueprint - *The Kenya Vision 2030*. Though the remittances are these important, official remittance data in Kenya, as well as in many African countries, only include remittances sent through formal channel, that is, banks and Money Transfer Operators. Remittances through the informal channels such as hawalas and hundis are not recorded. This means that the recorded remittances are grossly understated impeding the capacity of policy makers to design appropriate policies aimed at encouraging remittances. This study therefore, is seeking to establish the magnitude of informal remittances in Kenya and to examine how economic conditions influence remittances to Kenya. To achieve this objective, the study employed panel data analysis and a thought experiment on remittance data between 2013Q1 and 2022Q4. Through a thought experiment, the study asks what impact a reduction of the costs of sending remittances would have on remittances if the transaction costs were reduced to that of the informal channels of sending remittances. The analysis revealed that the size of the informal remittances in Kenya is between 20% and 26% of the formal remittances. On the determinants of remittance flows to Kenya, the study establishes that Kenyans in diaspora remit more when the economic freedoms and economic conditions improve in their host nations but send less when economic freedoms back at home improve.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of the Study

Remittances are monetary transfers made by immigrants from their host countries to their families or other people back home as a form of payment or gift. They basically consist of “household income from foreign economies, primarily resulting from migration of people to those economies, whether temporary or permanent.” (International Monetary Fund, 2009). Chami et al., (2008), avers that remittances constitute transfers by migrants who are employed in and are residents of a foreign country to their home country. Remittance flows are an important and growing part of global trade and finance (Peters & Kamau, 2015). Globally, as at 2020 there were almost 281 million international migrants worldwide, accounting for about 3.6 percent of the global population. Nearly two-thirds of these migrants were working abroad (McAuliffe & A. Triandafyllidou (eds.), 2021).

Remittance flows by migrants to Low- and Middle-Income Countries (LMICs) increased by 3.8 percent to reach \$669 billion in 2023. This represents a 77.8 percent of the world remittances, which stood at \$794 billion in 2022. Compared to Foreign Direct Investment (FDI), Official Development Assistance (ODA) and portfolio investment flows, remittances represent an even larger source of external finance for LMICs. From 2015, remittances have exceeded FDI inflows and ODA as a source of external finance for LMICs (Ratha et al., 2022, 2023).

The life and wellbeing of people in developing countries are significantly impacted by remittances, which are also widely thought to improve those countries' growth prospects. These flows improve financial service accessibility and help struggling

households. Despite all of its advantages, remittances have the potential to create reliance, lower labour effort, and lessen the chances of creating sustainable economies in the poor countries (Chami et al., 2008).

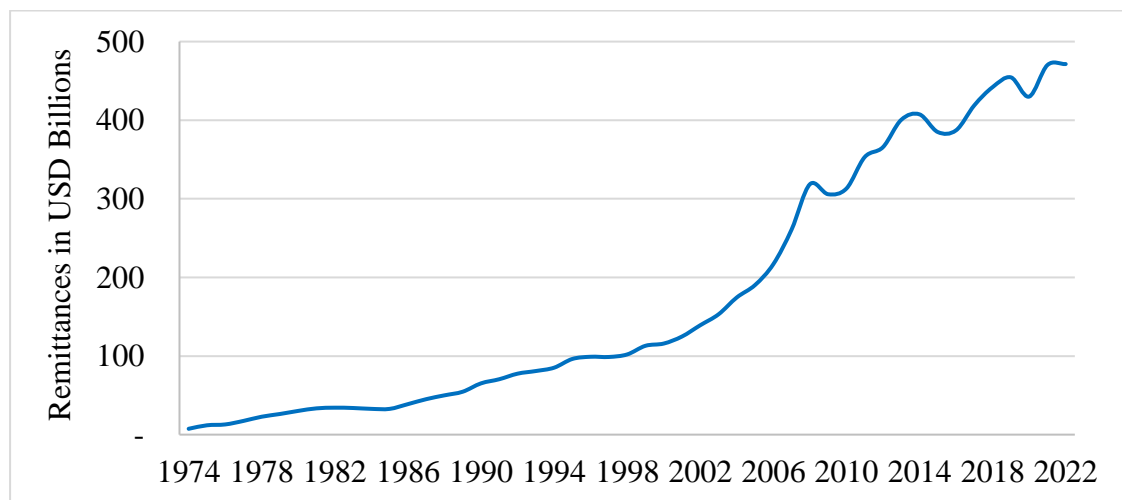
Sander & Maimbo (2005) argues there are no estimates of unrecorded inflows for the African continent, either formal or informal. Further, if global estimates are extrapolated, the total flows would be 2.5 times the official data and that unrecorded flows appear to be outstandingly high in certain countries. Informal remittances in Sudan for example were estimated to account for 85 percent of total remittance receipts. This means that the informal remittances make up a significant part of the remittances where formal financial systems are absent in the continent and the large number of migrations from one region to another. It is certain, however, that the official figures grossly underestimate the level of remittances (Sander & Maimbo, 2005). Literature further observes that the choice of sending remittances between formal and informal means is dependent of costs and that high transaction costs shift the means from formal to informal and vice versa (Ahmed & Martínez-Zarzoso, 2016).

The African situation may be true for Kenya for a number of reasons. First, there is a large number of informal and unregulated channels of receiving remittances in Kenya (The Diaspora and Consular Affairs Directorate., 2017). These informal channels range from the hawalas, pockets of friends and relatives as well as some transport service providers. Second, the financial institutions providing remittance services may not be adequate especially for intraregional migrants who wish to be anonymous (The Diaspora and Consular Affairs Directorate., 2017). Freund and Spatafora (2008) found out that a 1 percent reduction in transaction cost can increase the recorded remittances by 14 percent to 23 percent. The cost of sending remittances to Kenya through the

formal means may be high and costly due to screening and delays occasioned by regulations such as the Proceeds of Crime and Anti-Money Laundering Act of 2012.

### 1.1.1 Global remittance trends.

Global remittances globally have become a vital source of income for low- and middle-income countries (LMICs) and continues to grow. With technological advancements such as digital wallets, the remittance processes have been revolutionized, making transactions faster and more cost-effective (Ratha, Chandra, et al., 2023; Ratha, Plaza, et al., 2023). These funds often surpass foreign direct investment and aid in these economies, hence playing a pivotal role in poverty reduction, economic stability, and human capital development by financing basic needs like education and healthcare (Ratha, 2023).



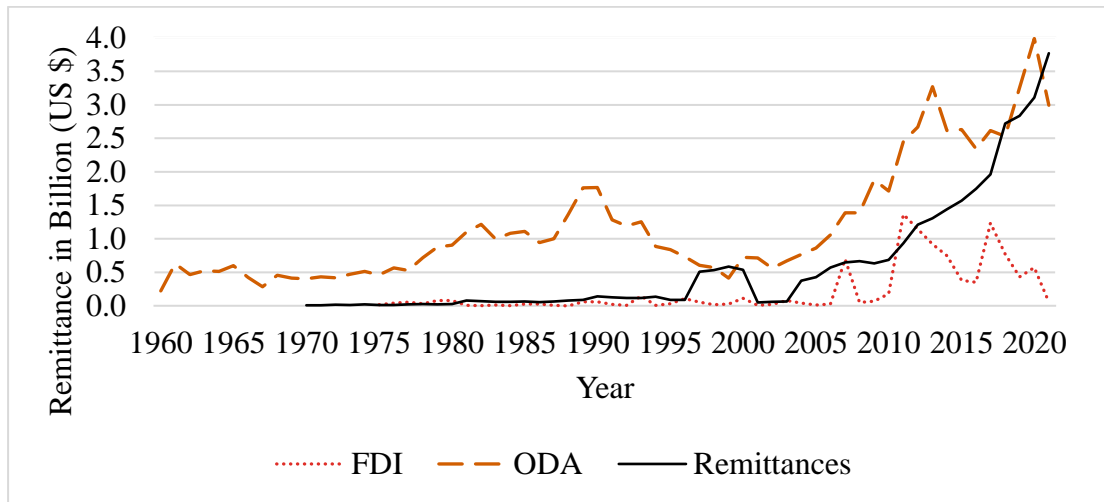
**Figure 1.1: Global Remittances Trend.**

*Data Source: World Bank 2024*

Figure 1.1 shows that the reported global remittances have been on the rise from \$7.46 billion in 1974 to \$471.41 billion in 2022.

### 1.1.2 Remittances flow to Kenya.

A comparison of remittances to Kenya with alternative sources of external funding such as FDI, exports and ODA reveals the growing prominence of remittances. The reported remittances from overseas Kenyans have grown from \$7.26 million in 1970 to \$4.189 billion in 2023 (Ratha, Plaza, et al., 2023).

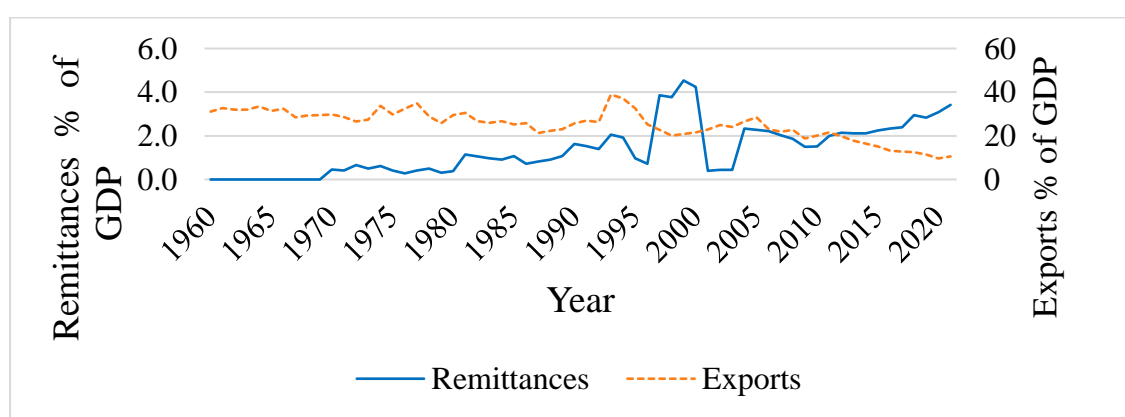


**Figure 1.2 : A Comparison of remittances, ODA and FDI flows to Kenya**

*Data Source: World Bank 2024*

Figure 1.2 shows that that prior to 1980 remittances were the second to FDI in providing external finances in Kenya. However, after 1980, remittances have overtaken FDI with the exception of 2007 due to the Global Financial Crisis, which was the most severe global economic crisis after the 1929's Great Depression, and 2011 when there was the downgrade of the United States' credit rating, which led to a crash in US and global stock markets. Figure 1.2 further shows that shows that prior to 1995 the ODA and remittances commoved. However, after 1995 remittances become erratic and generally assume an upward trend unlike ODA that slightly recovers and assume a downward trend. This is a clear demonstration that remittances play an important role in Kenya's economy.

Remittances have further emerged as a significant contributor to Kenya's economy, often rivalling or even surpassing traditional exports in their impact on the country's Gross Domestic Product (GDP). Over the past decade, the inflow of remittances from the Kenyan diaspora has grown steadily, driven by increased migration and improved digital payment systems. In recent years, remittances have consistently accounted for a larger share of Kenya's GDP compared to earnings from key exports such as tea, coffee, and horticulture.



**Figure 1. 3 : Remittance and Exports as percentage of GDP.**

*Data Source: World Bank 2024*

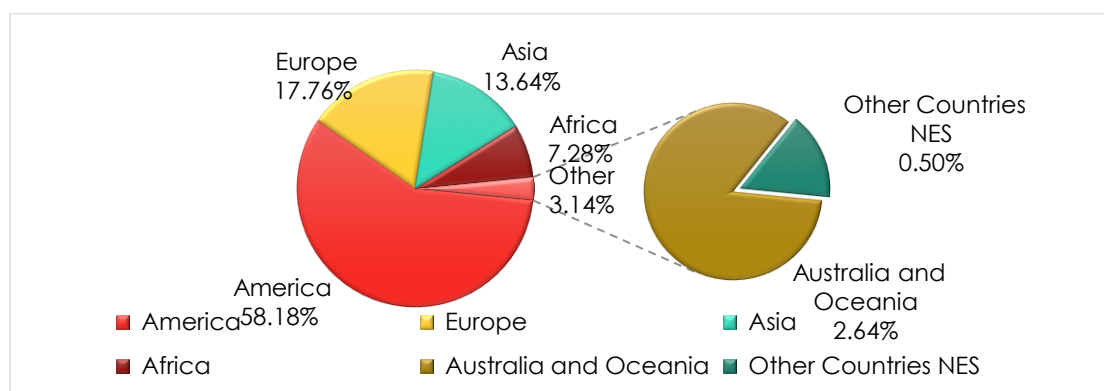
Figure 1.3 shows that the exports to GDP ratio have generally been going down while the remittances to GDP ratio have been on the rise over the period 1960 and 2022. It is estimated that remittances contributed to about 3.44 and 3.58 percent of Kenya's GDP in 2021 and 2022 respectively. However, the ratio of remittances to GDP has generally been rising over the same time. Figure 1.3 further shows that relative to the trend in remittances exports are more volatile. This trend highlights the growing importance of remittances as a stable source of foreign exchange, cushioning the economy against external shocks and supporting household incomes, consumption, and investment. Unlike exports, which are often vulnerable to global market fluctuations and climatic

conditions, remittances have proven to be more resilient, providing a reliable financial lifeline for many Kenyan families and bolstering the country's economic stability.

From a social planner’s perspective, remittances to Kenya are more appealing. To begin with, the comparison with FDI in Figure 1.2 reveals that past 1980 remittances are more than FDI. Secondly, the comparison shown in Figure 1.3 means that the contribution of exports to external finances is waning and volatile unlike that of remittances that are growing and more stable.

Lastly, the comparison in Figure 1.2 shows that remittances and ODA were important as sources of external finances for development prior to 1995 after which ODA assumes a general downward trend while remittances assume a general upward trend. This means that relative to ODA remittances are the promising source of external finances for Kenya. This has led to the inclusion of remittances as a flagship project in the country’s development blueprint - *The Kenya Vision 2030*.

Other than being promising, stable and more than some of the alternative remittances to Kenya has additional attractions. First, the remittance is well diversified.

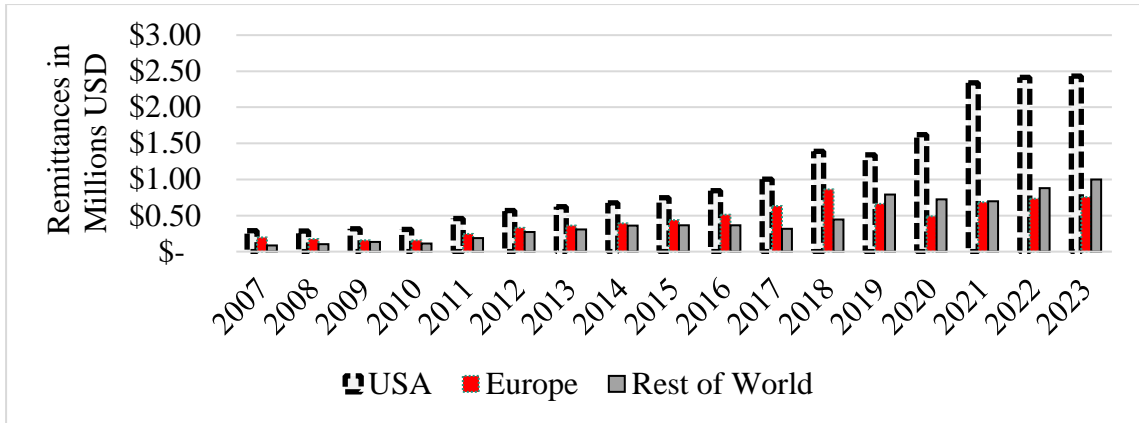


**Figure 1. 4.: Kenya Remittance Corridors.**

*Data Source: Central Bank of Kenya 2024.*

According to CBK, (2024) statistics, Figure 1.4 shows that in the year 2023 the America remittance corridor contributed 58.18%, Europe contributed 17.76%, Asia stood at 13.64%, Africa at 7.28% while the rest of the world contributed 3.14% of the total remittances to Kenya. Country wise, the dominant source is the United States of America (USA) at 55.86 % of the total remittances in the year 2023 followed by Saudi Arabia at 8.83% and United Kingdom (UK) at 7.98 % then the rest of the world. This has been collaborated by a report by IOM (2022) that as at 2022 out of 531,000 Kenyans who migrated abroad between 2016 -2022, around 374,000 migrated either Europe and North America. Unfortunately, a lot of migration to Saudi Arabia and the entire Gulf region is undocumented.

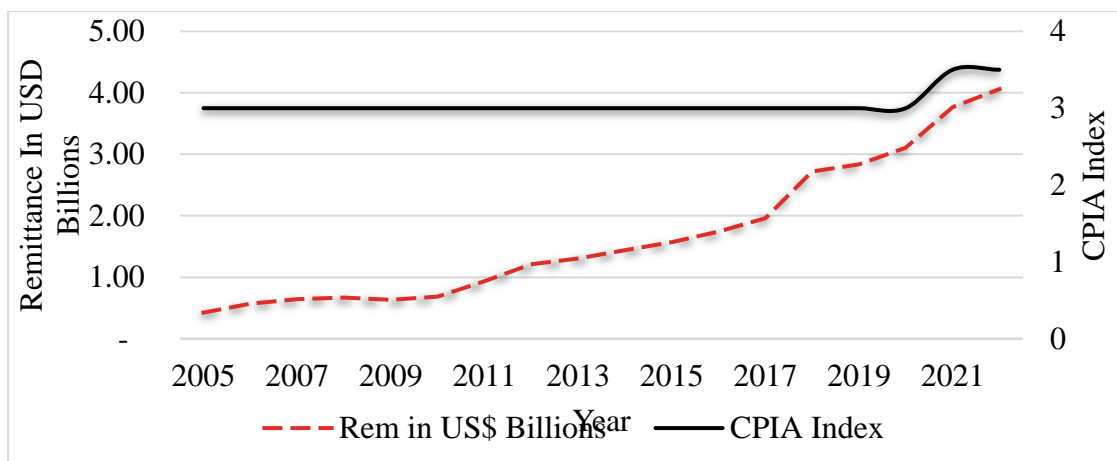
The remittances have the characteristic that those from the USA can be easily obtained by combining those from Europe and the rest of the world. This means that the contribution from the dominant source, the USA, can easily be substituted with what comes from Europe and the rest of the World. This makes remittances attractive since harsh economic conditions are hardly experienced the world over at once. For instance, Figure 1.5 shows that remittances from the USA stagnated during the global financial crisis of 2007 to 2011 unlike those from the rest of the world that showed some resilience against the crisis.



**Figure 1 5: Sources of Remittance to Kenya**

*Data Source: Central Bank of Kenya 2024.*

Second, remittances are inelastic to the economic environment. Figure 1.6 shows the trend in remittances and Country Policy and Institutional Assessment index (CPIA). The CPIA index has a minimum and maximum value of one and six respectively. A value of one (six) means that a country’s policy and institutional framework quality is low (high). The quality of a country’s policy and institutional framework supports sustainable economic growth and poverty reduction and, consequently, the prudential use of external sources of finance including remittances. Therefore, it would be expected that remittances should respond to variations in the CPIA index. Figure 1.6 however, shows that despite the stagnant average quality of Kenya’s policies and institutional framework the remittances have been rising. This is unlike the alternatives to remittances such as private capital and ODA that have been found to be procyclical with the quality of policies and institutions in a country (Ratha, 2003).



**Figure 1.6: Remittances’ Response to Economic Environment.**

*Data Source: World Bank 2023*

Third, remittances directly go to households and are put in important uses that are in line with the development goals in the country. According to literature, remittances are either for altruistic reasons, compensation for services rendered, insurance, loan repayment and investment (Rapoport & Docquier, 2006). In Kenya, the remittances are utilized for consumption, education (human capital investment), housing (rent), debt repayment, food clothing, health care and investments. Kenya National Bureau of Statistics (2018) reported that out of the remittances received 29.4% was used on education, 22.8% on consumption, 11.4% on investment or business 9.8% on health and 26.6% went to other uses. Therefore, the remittances to Kenya largely help in achieving the flagship projects of the social pillar in *The Kenya Vision 2030*. In particular, the remittances are aiding in the achievement of a universally competitive and adaptive human resource base and a suitably and decently-housed nation in a sustainable economic environment.

Overall, therefore, remittances are important to Kenya both on the macro and micro scenes. In the macro scene the remittances are providing an alternative to the traditional sources of external finances such as ODA, FDI and exports. Further, the remittances

are more stable, well diversified and are promising growth compared to these alternatives. On the micro scale the remittances are helping achieve the country's developmental goals of a globally competitive human resource and an adequately and decently housed population.

### **1.1.3 Legal, institutional and Policy frameworks in Kenya.**

Kenya's remittance sector is vital for its economic stability, yet its regulatory frameworks have notable weaknesses. The Central Bank of Kenya Act mandates the CBK the authority to supervise financial institutions involved in remittances (CBK, 2015). Laws like the Proceeds of Crime and Anti-Money Laundering Act, (2009) and Money Remittance Regulations, (2013) are meant to prevent financial crimes, but their stringent requirements increase operational costs for remittance service providers, which are often passed on to consumers. The Foreign Exchange Management Act is also critical for cross border remittances. These legal structures are not fully adapted to new technologies such as blockchain, limiting innovation (CBK, 2015).

Institutionally, the CBK licenses and supervises remittance services, while the Financial Reporting Centre (FRC) monitors financial transactions for money laundering and terrorism financing (FRC, 2021). The Communications Authority of Kenya (CA) oversees mobile money platforms, and the Kenya Revenue Authority (KRA) handles tax documentation. However, overlapping mandates and resource limitations lead to inefficiencies, and consumer protection is inadequate (IFAD, 2023).

Policy-wise, Financial Inclusion Policy, Digital Financial Services (DFS) Policy and the National Payment System Regulations, (2014) aim to improve remittance services and financial access. Yet, rural populations still struggle with access, and alignment with regional initiatives, such as the East African Community (EAC) payment systems, is lacking. Lastly, remittances face challenges include and not limited to high

transaction costs, limited market competition, exchange rate volatility, and the use of informal remittance channels (FSD Kenya, 2023).

## **1.2 Statement of the Problem**

According to Ratha, Chandra, et al. (2023), remittance flows to LMICs increased by an estimated 3.8 percent to reach \$669 billion in 2023 while those to high-income countries have shown almost no change since 2021. Thus, remittances continue to be a main source of external finance for LMICs during 2023, compared to FDIs and ODAs. Remittances are becoming increasingly crucial as a source of external finance for LMICs emphasises the importance of improving the timeliness of reporting and resolving discrepancies in the classification of remittance flows data.

Despite the significance of remittances to any country, official remittance data only includes remittances made through authorized channels (IMF, 2009; CBK, 2021; Fernandes et al., 2023). CBK carries out a survey on remittance inflows to Kenya every month through formal channels. These formal channels include commercial banks and other money transfer operators (MTOs) in Kenya. Therefore, a significant amount of remittances are not captured in the national statistics since the reported amount excludes remittances through informal channels and in-kind remittances.

Sander & Maimbo (2005) argues that the current data on remittances to Africa likely underestimates the true volume of financial flows. This is due to the prevalence of unrecorded transfers, encompassing both formal and informal channels. While global estimates suggest unrecorded remittances may be 2.5 times official figures, anecdotal evidence suggests this ratio might be even higher in Africa. Sudan, for instance, exhibits a remittance landscape where informal transfers are estimated to constitute a staggering 85% of total receipts. Consequently, existing data on remittances to Africa should be

interpreted with caution, as they likely significantly underestimate the actual contribution of migrant workers to their home economies.

Due to high recording thresholds and transfers through informal channels, Schiopu & Siegfried (2006) notes that BOP data underestimates the true remittance flows. These informal channels include hawala, in-kind remittances, and cash carried by friends and relatives. Further, only aggregate amounts have been used in empirical research since bilateral remittance flows are not recorded in the BOP data.

Whereas studies have broadly covered remittances, much focus is emphasized on the formal remittances. The informal remittances are always overlooked and the area is not sufficiently covered. Owing to the above, this means that the remittances into any country, Kenya included are grossly understated. Such inaccuracies in remittances data impede the capacities of policy makers to design appropriate policies aimed at encouraging remittances for investment and economic development. Given the role played by remittances in harnessing social and economic development, it is imperative to determine the magnitude of the informal remittances in Kenya. Without the accurate figures on informal remittances, the remittance market's full size is often underestimated. As such this study seeks to establish the true size of informal remittances in Kenya with a view of informing policy and aiding proper recording of remittance flows.

### **1.3 Research Questions**

The study sought to answer the following research questions;

- i. What is the magnitude of informal remittances to Kenya?
- ii. How does economic conditions in the host country influence remittances sent to Kenya?

## **1.4 Objective of the study**

### **1.4.1 General Objective**

The study main objective was to estimate the magnitude of informal remittance flow to Kenya and determine the factors influencing remittances to Kenya.

### **1.4.2 Specific Objectives**

The specific objectives that informed this study were as follows;

- i. To estimate the magnitude of informal remittances to Kenya.
- ii. To examine how economic conditions in the host country influence remittances to Kenya.

## **1.5 Significance of the Study**

Understanding the magnitude of informal remittance flows is of paramount importance for Kenya's economic well-being. The significant contribution of remittances to the nation's GDP necessitates a clear and accurate picture of these financial inflows. However, a substantial portion of these remittances moves through informal channels, remaining unrecorded and thus, unaccounted for in official economic data. This "hidden" financial activity poses a significant challenge to policymakers seeking to maximize the positive impact of remittances on household well-being and national development.

Knowing the size of these informal flows allows the Kenyan government to formulate targeted policies and interventions. By understanding the determinants of informal remittances, policymakers can design strategies to encourage formalization, thereby channeling these funds into regulated financial institutions and productive economic activities. Furthermore, accurately quantifying informal remittances provides a more comprehensive assessment of their economic impact, including their contribution to GDP, employment generation, and overall financial stability. This enhanced

understanding is crucial for sound economic planning and the development of a robust financial sector.

Moreover, addressing the challenges posed by informal remittance channels and promoting formalization can enhance transparency and strengthen the financial sector, contributing to long-term economic growth. Improved data collection and reporting systems, facilitated by a better understanding of remittance flows, lead to more informed policy decisions and improved coordination among stakeholders. Ultimately, by gaining a clearer understanding of informal remittances, Kenya can better leverage these financial flows to improve household well-being and drive sustainable economic development.

### **1.6 Scope of the Study**

The study sought to enhance the existing studies on remittances. The study was conducted in Kenya. A secondary data, a panel data set for the period 2013 – 2022, from Central Bank of Kenya, World Bank, Heritage Research and Organisation for Economic Co-operation and Development (OECD) was used to address the study objective.

### **1.7 Organization of the Study**

This project is divided into five chapters. Chapter one provides background information and outlines the study's objectives. Chapter two reviews relevant theoretical and empirical literature, summarizing the existing research. Chapter three presents the research design and methodology. Chapter four analyzes the findings, and chapter five focuses on conclusions and policy implications.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter offers a review of both theoretical and empirical literature, divided into three sections. The first section examines the theoretical literature on remittances, the second section covers the empirical literature review, and the third section focuses on the overall overview of the literature.

#### **2.2 Theoretical Literature**

##### **2.2.1 Altruistic Theory**

Altruism, coined by a French philosopher, (Comte & Congreve, 1891), has been suggested as the underlying motivation to a migrants' decision to remit. Proponents of altruism principle argue that migrants' remittance decision are based on their family members obligation to assist one another (Stark & Lucas, 1988; Becker, 1981; Stark, 1995; Rapoport & Docquier, 2006). The altruism doctrine suggests that migrants are willing to send money home to compensate for their family members' income shortfall, whether for consumption or investment. Altruistic theory proposes that a migrant will willingly sacrifice their own interests or well-being for the benefit of their family members due to the love and care they have for them.

Pure altruism suggests that an individual must forego something, either a physical resource, time or energy, so that another person may benefit without expecting anything in return. The altruism theory suggests that by remitting, migrants maximize their utility. The altruistic theory claims that the migrants tend to purposively improve their family's well-being back at their home country theory (Becker, 1981; Lucas & Stark, 1985; Stark, 1995; Osili, 2007).

### **2.2.2 The Tempered Altruism Theory**

The theory postulates that the decision to remit is as a result of beneficial informal agreements between migrant and those that they leave behind (Lucas & Stark, 1985). These informal arrangements that explain migrant decisions are as result of either risk and investment or the lack of formal insurance contracts and incomplete capital markets. (Johnson & Whitelaw, 1974 and Rempel & Lobdell, 1978) argues that under risk and investment, families invest in the migrant's future prospects and remittances are return on investment for such families. On the other hand, Harris & Sabot, (1982) and Lucas & Stark, (1985) argue that the need to expand family income due to risky milieu that both families and migrants face. These include food insecurities due to crop failures, famine job insecurities in urban areas among others.

Therefore, remittances are claims on informal agreements and because such informal agreements are mutually beneficial, they are self-enforcing and ensure that there is no delinquency

### **2.2.3 Intention to Return**

The theory is based on empirical studies in Botswana and Kenya by (Lucas & Stark, 1985) and (Hoddinott, 1994) respectively. The sole motive for remitting funds and other resources is that the migrants intend to return their home countries (Collier et al., 2011; Verheyden & Delpierre, 2009). Lucas & Stark ,1985; Hoddinott, 1994) avers that the motive, intention to return, is often attributed to the motivation to inherit. This means that the migrants have an incentive to keep contact and interest in their origins. Further, migrants who plan to eventually return to their home country are more likely to send larger amounts of money back home as remittances.

### **2.2.4 Gravity Model of Remittance Theory**

The gravity model of remittances is an extension of the traditional gravity model of trade, which was initially developed to explain the flow of goods and services between countries which was introduced by Tinbergen, (1963).

Remittances are as a result of immigration and just like international trade, immigration is as a result of the differences in GDP and hindered by migration costs (Borjas, 1999). This is the gravity model which states that trade flows between two countries are inversely proportional to the distance between them and proportional to the two countries' economic sizes (GDPs) (Lueth & Ruiz-Arranz, 2008). The gravity model can be used to explain remittances since remittances are as a result of immigrations. The basic idea is that remittances generally decrease as the distance between the two countries increases. However, they increase when the economic size of either the host or home country, as measured by GDP, increases (Ahmed & Martínez-Zarzoso, 2016).

### **2.3 Empirical Literature**

Various approaches have been proposed to estimate remittances. The approaches are broadly grouped into the direct and indirect approaches (Freund & Spatafora, 2005). The indirect approaches constitute of shadow economies and models-based approach and the experimental approach (Aggarwal & Spatafora, 2005; Cagan, 1958; El Qorchi et al., 2003; Freund & Spatafora, 2005). The direct approach holds that the size of informal remittances can be measured using household surveys.

Schiopu & Siegfried (2006) using a panel data of remittances from twenty-one Western European sending nations to seven European countries for the period 2000–2005 and discovered the contrary finding regarding the relevance of geographical distance. According to the study's findings, remittances are not explained by geographic distance. If there is no shared boundary between the nations, the outcome is favourable.

Lueth & Ruiz-Arranz (2008) modelled remittance flows for eleven countries in Europe and Asia between 1980-2004 based on a data of bilateral remittance for a group of thirty three developing nations that sent money home to eleven home countries using a gravity model of remittance. The GDP of the host and home nations, gravity variables, the

immigrants' stock, political risk, among others are some of the variables that they considered and that are commonly mentioned as determinants of remittances. Their findings showed that more than half of the variance in remittances can be explained by gravity variables, economic activities in the home and host countries, and other factors.

De Sousa & Duval (2010) studied remittance inflows to Romania from different nations between 2005 and 2009 and discovered that the economic size and geographic proximity of the home and host countries seem to have a beneficial influence on bilateral flows. The loan repayment hypothesis, which states that a decrease in the physical distance between the countries of origin and destination of migrants generates decrease in remittances in exchange for the low migration costs borne by the family, supports the positive relationship between remittances and distance.

Frankel (2011) using the same data used by Lueth & Ruiz-Arranz (2008), discovered that remittances are inversely correlated with distance, but income per capita in the host nation is positively and highly significant across all specifications. Additionally, the study discovered that similar language and borders are not statistically significant gravity variables.

Chisasa (2014) studied the prevalence of sending informal remittances from South Africa to Zimbabwe found out that a migrant's choice of remittance channel is influenced by convenience, quick delivery, and excellent customer service. This is related to the fact that official MTOs need legal documentation, which is typically challenging for migrants to provide.

Freund & Spatafora (2005) using historical worker remittance data from the BOP, along with information on transaction costs, migration, and other nation characteristics, empirically estimated informal remittances for over 100 countries, drawing on ideas

from the literature on shadow economies. The study found that informal remittances are about 35–75 percent of official remittances to developing countries.

(Ahmed & Martínez-Zarzoso, 2016) using a gravity model on remittance flows to Pakistan, examined the effect of transaction costs on remittances. The study discovered that transaction costs are substantial and negatively impact remittance flows. High costs can discourage migrants from sending money home or lead them to use informal channels. The study proposes that remittances are facilitated by migrant networks and advancements in financial services in both the home and host countries. Furthermore, distance, previously used as a measure of remittance costs, was found to be an unreliable proxy.

#### **2.4 Overview of Literature**

Studies reviewed, from different geographical regions, show that there is by now widespread recognition of remittance's importance to any country. The reviewed literature provides a justification for estimating the magnitude of the informal remittances. Theoretical literature reviewed put emphasis on the determinants of formal remittances. The empirical literature reviewed established different determinants of formal remittances.

This study differs from the empirical studies examined on a number of fronts. While past studies have tried to establish the determinants of formal remittances, only Freund & Spatafora (2005) and Sander & Maimbo (2005) have focused on the informal remittances. In order to fill that knowledge gap, this study will focus on the magnitude of the informal remittances in Kenya and examine how economic conditions in the host country influence remittances.

## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.1 Introduction

This chapter will concentrate on the methodological approach adopted by the study, informed by the theoretical and empirical literature. It includes the theoretical framework, specification of the empirical model, definition and measurement of variables, econometric approach, and data sources.

#### 3.2 Research Design

The core objective of this study is to estimate the magnitude of informal remittances to Kenya using the thought experimental approach using a longitudinal research design. The study will estimate the magnitude of the Kenya's informal remittances using the impact of reducing costs of sending remittances from the price charged by formal channels to that charged by informal channels.

#### 3.3 Theoretical Model

The study is anchored on the gravity model of remittances. The gravity model of remittances states that remittances between two countries are inversely proportional to the distance between them and directly proportional to the two countries' economic sizes (GDPs). The gravity model of remittances is given by:

$$Rem_{ijt} = A \frac{[GDP_{it} * GDP_{jt}]^{\beta}}{D_{ij}} X_{ijkt} \dots \dots \dots (3.1)$$

Where:

$Rem_{ijt}$  are remittances from host country  $i$  to home country  $j$  in year  $t$ ,

$GDP_{it}$  is the income of the host country  $i$  in year  $t$

$GDP_{jt}$  is the income of the home country  $j$  in year  $t$

$D_{ij}$  is the cost of distances (Costs of sending remittances) between country  $i$  and  $j$ .

$X_{ijkt}$  Are a host of  $k$  control variables that explain remittances between country  $i$  and  $j$

Log linearizing equation (3.1) we have:

$$\ln(Rem_{ijt}) = \beta_0 + \beta_1 \ln(GDP_{it}) + \beta_2 \ln(GDP_{jt}) + \beta_3 \ln(D_{ij}) + \sum_{k=1}^K \beta_k \ln(X_{ijkt}) + \gamma_i + U_{ijt} \dots \dots \dots (3.2)$$

Where:  $\gamma_i$  is host country  $i$  unobserved heterogeneity,

$U_{ijt}$  is the error term.

### 3.4 Model Specification

Following Freund & Spatafora, (2005); Lueth & Ruiz-Arranz (2008); De Sousa & Duval (2010) and Ahmed & Martínez-Zarzoso (2016, equation (3.2) can be further modified by adding control variables and removing the GDP of the home country since we're focusing on remittances sent by migrants. To assess the effect of cost on remittances to the home country, equation (3.2) is further adjusted by including transaction costs in logarithmic form and excluding physical distance between the two countries.

$$\ln(Rem_{ijt}) = \beta_0 + \beta_1 \ln(GDP_{it}) + \beta_2 \ln(Cost_{ijt}) + \beta_3 EF_{jt} + \beta_4 EF_{it} + \beta_5 EX_{ijt} + \beta_6 d + \gamma_i + U_{ijt} \dots \dots \dots (3.3)$$

Where:

$Cost_{ijt}$  is total cost (fee plus exchange rate costs) charged to send remittances from host country  $i$  to home country  $j$  in year  $t$ .

$EF_{jt}$  is the degree of economic freedom in home country  $j$ .

$EF_{it}$  is the degree of economic freedom in host country  $i$ .

$EX_{ijt}$  is the bilateral exchange rate between host country  $i$  and home country  $j$  in year  $t$ .

$d$  is the country where the remittances are sent from.

Equation (3.3) forms the basis of estimations in this study. It is through the coefficients of costs ( $\beta_2$ ) that the thought experiment will be conducted and the size of informal remittances established.

### 3.5 Definition and Measurement of Variables.

**Table 3.1: Definition and Measurement of Variables.**

Variable	Definition	Measurement	Source
<b>Dependent Variable</b>			
Remittances, $Rem_{ijt}$	Monetary transfers that a migrant makes from a host country to home country (country of origin).	USD '000'	CBK monthly surveys
<b>Gravity Variables</b>			
Real GDP of the host country, $GDP_{it}$	The monetary value of all final goods and services produced in the host country in a given year calculated at some base year prices.	USD	World Development Indicators (WDI)
Economic Freedom, $EF_{jt}$ and $EF_{it}$	Fundamental right of every human to control his or her own labour and property.	Percentage	Heritage Research
<b>Control Variables (<math>X_{ijkt}</math>)</b>			
Costs, $Cost_{ijt}$	The is total cost (fees, commissions and exchange rate costs) of sending remittances from host country $i$ to home country $j$ in year $t$	The average cost in USD of sending remittances through formal channels in country $i$ to country $j$	Send Money Africa
Bilateral Exchange rate, $EX_{ijt}$	The exchange rate between host country $i$ 's currency and home country $j$ 's currency	The value of the Kenya shilling in US\$ or UK £	CBK
Regional Source, $d$	Refers to the country where the remittances are sent from.	A dummy that sets to 1 for the US and 0 for the UK	Author
<b>Thought Experimental Variables</b>			
Formal prices, $P_f$	The fee charged by formal channels for sending remittances from host country $i$ to home country $j$	The minimum and the maximum price in USD of sending USD 200 to home country $j$ from host country through formal channels $i$ .	Send money Africa
Informal prices, $P_{if}$	The fee charged by informal channels (hawala) for sending remittances from host country $i$ to home country $j$ .	The minimum and the maximum price in USD of sending USD 200 to home country $j$ from host country through informal channels	Hawala Agents

### **3.6 Data Type and Source**

Formulation of equation 3.3 requires that the study uses panel data matching each remittance with the host nation. Consequently, all the other determinants of remittances will assume a panel design. The variables are defined and sourced as shown in Table 3.1. The data required is such that each remittance has to be matched with its source nation. The data set available for Kenya matches remittances with the US and the UK. Consequently, this study will use the US and the UK as the host regions. It is worth noting that these two nations contribute around 63.83% of the remittances to Kenya (CBK, 2024). Therefore, the countries provide a representative sample of remittances to Kenya.

### **3.7 Data Analysis.**

#### **3.7.1 Panel Data Properties**

Before conducting the regression analysis, several tests were performed to ensure that the assumptions of the classical linear regression model were not violated.

##### **3.7.1.1 Normality Tests.**

To conduct statistical tests on any model, it is assumed that the data follows a normal distribution. While a quick look at the scatter plot can give a general idea about the data's distribution, it is often difficult to definitively define the data's normality. As a result, the study employed Shapiro & Wilk, (1965) test to formally assess if the data fits a normal distribution.

##### **3.7.1.2 Wooldridge Test on Serial Correlation**

Because the data combines cross-sectional and time-series elements, there may be serial correlation. If not identified and addressed, serial correlation in the error term can lead to inefficient estimators and biased standard errors in a panel data analysis. The Wooldridge (2005) test was used to address serial correlation.

### **3.7.1.3 The Wald Test for Heteroscedasticity**

This is a test for heteroscedasticity which examines whether the error variance in panel regression model is constant (homoscedasticity) or unequal across observations (heteroscedasticity). The Wald test utilizes the squared residuals of the model to assess if the variance differs significantly. If heteroscedasticity is present, applying robust standard errors or alternative estimation methods will be considered.

### **3.7.1.4 Hausman Test**

To determine if the model is a Fixed Effects (FE) or Random Effects (RE) mode, the Hausman test is employed. FE models account for unobserved individual effects, while RE models assume these effects are random. The Hausman test compares the coefficients from both models. If the test statistic is insignificant, it suggests no systematic difference between FE and RE, and RE might be preferred due to efficiency.

## **3.8 Estimation Technique**

To estimate informal remittances and address the first objective, the study will take into account the following thought experiment: Suppose through policy interventions, transaction costs related to sending and receiving remittances are to be minimized. The thought experiment approach asks what impact a reduction of the costs of sending remittances would have on remittances if the transaction costs were lowered to that of the informal channels of sending remittances. The approach considers this impact to be the size of informal remittances for the unit of analysis in question. The approach is anchored on the strong assumption of low elasticity (inelasticity) of quantity of remittances to changes in the cost of sending remittances. Further, coefficients of equation 3.3 are elasticities since the model is a double log model making it feasible to address the study's objectives.

Due to the panel structure assumed by the study the coefficients in equation 3.3 could be estimated using pooled OLS (POLS), fixed effects or random effects. The results from POLS estimator are usually biased in presence of individual heterogeneity whenever the individual effects are non-zero. As such, the fixed and random effects models are usually preferred in presence of individual uniqueness's. The fixed effect estimator, however, does not provide estimates for time invariant covariates such as dummy variables. This can be solved by use of Mundlak approach if the fixed effects model were selected (Mundlak, 1978). The main problem with remittance studies is endogeneity of the regressors (*Ahmed & Martínez-Zarzoso, 2016; De Sousa & Duval, 2010; Freund & Spatafora, 2005*). For instance, the GDP of a host nation may influence the size of remittances to a home country while at the same time these remittances may influence the GDP of the host country. To address these endogeneity problems, *Hausman & Taylor (1981)* estimator is used. This estimate instruments the endogenous time variant variables with their means. Since, the data set used by the study was prone to the endogeneity problems, results obtained from *Hausman & Taylor (1981)* approach were considered the consistent estimates.

## CHAPTER FOUR

### EMPIRICAL FINDINGS

#### 4.1 Descriptive Statistics for Variables

Descriptive statistics for variables of interest: remittances, GDP of the host country, Cost of sending \$200 from a host country, bilateral exchange rate and economic freedom were computed and results tabulated as shown in Table 4.1.

**Table 4.1 Descriptive Statistics**

Variable	Country	Mean	Std. Dev.	Min	Max
<b>Remittances (USD '000)</b>	UK	145,136.50	41,665.11	85,551.74	242,060.60
	US	328,077.70	162,316.20	151,499.20	668,999.30
<b>GDP (USD Millions)</b>	UK	2.83E+06	1.55E+05	2.32E+06	3.04E+06
	US	1.93E+07	1.26E+06	1.72E+07	2.14E+07
<b>Cost in USD/ USD200</b>	UK	13.37	3.19	7.59	19.55
	US	13.29	2.34	10.20	24.78
<b>Bilateral Exch. Rate</b>	UK	0.0072	0.0004	0.0063	0.0079
	US	0.0099	0.0009	0.0082	0.0118
<b>Economic Freedom (%)</b>	UK	76.56	2.02	72.70	79.30
	US	75.42	1.27	72.10	76.80
	Kenya	55.22	1.42	52.60	57.50

*Source: Analysis from the research data (2024)*

Table 4.1 shows that descriptive statistics of the variables under consideration. Kenya received on average \$145 million quarterly from UK and \$328 million quarterly from US respectively for the period 2013Q1 and 2022Q4. Further, the minimum remittances per quarter during the period under review was \$85 million from UK and \$151 million from the US. The maximum remittances per quarter during the period was \$242 million and \$668 million. This means that US was the main host nation for Kenya in terms of diaspora remittances. This corroborates finding from Figure 5.5 drawn from (CBK, 2024) data on remittances.

The mean GDP of UK was \$2.83E+06 trillion while United States of America GDP is \$1.93E+07. This means that United States of America GDP is roughly six times UK's GDP. The minimum GDP for UK and USA for the period under review was \$2.32E+06 and \$1.72E+07 respectively while the maximum GDP for the two countries was \$3.04E+06 and \$2.14E+07. From this, we can deduce that Kenya receives a huge chunk of remittances from countries which are well endowed in terms of GDP.

The average cost of sending \$200 to from UK between 2013Q1 to 2022Q4 is \$13.37 while the cost of sending the same amount from US is \$13.29. The minimum amount charged for \$200 from UK was \$7.59 and \$10.20 for funds originating from US. The maximum amount charged for the same amount, \$200, from UK is \$19.55 while US charged \$24.78. This mean cost of sending \$200 to Kenya represents about 6.7% of the total value of the transaction. In addition, we observe that US' costs of sending \$200 are higher compared to UK.

The average value of Kenya Shilling for the period 2013Q1 to 2024Q4 is \$0.0099 and £0.0072. This means that Sterling Pound (£) was the strongest currency followed by US Dollar (\$) and the Kenyan Shilling (KES) was the weakest. Due to Sterling Pound being the strongest currency, migrants in the UK had a high motivation to send remittances back home considering the bilateral exchange rate between Kenya and the UK.

Lastly, the mean Economic Freedom for the three, that is UK, US and Kenya, are 76.56%, 75.42% and 55.22% respectively. This means that Kenya received remittances from countries that are economically free. Plainly put, a huge fraction of remittances originates from countries where individuals have the liberty or the freedom to trade or produce goods and services without unwarranted interference from the government.

## 4.2 Diagnostic Tests

To ensure the reliability of the model, several diagnostic tests were conducted before drawing any conclusions. This is crucial for determining if the model can be used for forecasting.

### 4.2.1 Normality Tests Results

The study employed Shapiro-Wilk to test for normality. From Table 4.2 the P-value for the Shapiro Wilk test is  $> 0.05$  for all the variables. We can therefore conclude that the variables are normally distributed.

**Table 4.2 Normality Test Results**

Shapiro–Wilk W Test for Normal Data				
Variable	<i>W</i>	<i>V</i>	<i>z</i>	<i>Prob&gt;z</i>
Log of Remittances	0.93922	4.172	3.13	0.00088
Log of Cost	0.95189	3.302	2.618	0.00443
Log of Host County’s GDP	0.69333	21.05	6.676	0
Bilateral Exchange Rate	0.93005	4.801	3.437	0.00029
Host Country’s Economic Freedom	0.95469	3.11	2.486	0.00646
Kenya’s Economic Freedom	0.96573	2.352	1.874	0.03047

*Source: Analysis from the research data (2024)*

### 4.2.2 Wooldridge Test for Autocorrelation Results

Table 4.3 displays Wooldridge results for autocorrelation. From the results, the null hypothesis of no serial correlation is not rejected given the insignificance of the p-value.

The p-value is 0.2525

**Table 4.3 Wooldridge Test for Autocorrelation Results**

Wooldridge test for autocorrelation in panel data
H0: No first order autocorrelation
F (1, 1) = 5.699
Prob > F = 0.2525

*Source: Analysis from the research data (2024)*

### 4.2.3 Wald Test for Heteroskedasticity Results

The results in Table 4.4 indicates that the null hypothesis of homoscedastic error terms is not rejected as supported by a p-value of 0.9206.

**Table 4.4 Heteroskedasticity Results**

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**Modified Wald test for groupwise heteroskedasticity in fixed effect regression model**

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H0:  $\sigma(i)^2 = \sigma^2$  for all i

chi2 (2) = 0.17

Prob>chi2 = 0.9206

---

*Source: Analysis from the research data (2024)*

### 4.2.4 Hausman Test Results

To determine whether the random effects or the model effects, the Hausman test was conducted. The results for the Hausman test are tabulated in Table 4.5 below.

**Table 4.5 Hausman Test Results**

	Coefficients			sqrt(diag(V_b-V_B)) Std. err.
	(b) FE	(B) RE	(b-B) Difference	
Log of GDP	3.777486	3.777486	-7.21E-10	.
Log of Cost	-0.37102	-0.37102	-1.05E-10	.
Bilateral Exchange Rate	0.010508	0.010508	2.00E-12	.
Host County's Econ. Freedom	0.036073	0.036073	1.42E-12	1.29E-08
Home Country's Econ. Freedom	-0.03465	-0.03465	-5.25E-12	.

---

*Source: Analysis from the research data (2024)*

The difference between the coefficients is negligible and suggests that there is no significant difference between the fixed effects and the random effects model. However, the random effects model is preferred due its efficiency compared to the random effects model.

### 4.3 Regression Results

The regression results in Table 4.6 show that costs of sending remittances, economic freedom at host, regional source of remittances and GDP of the host nation are significant determinants of remittances to Kenya. However, the home country's economic freedom is insignificant in determining remittances to Kenya.

**Table 4.6 Regression Output**

<i>Variables</i>	<i>Pooled OLS</i>	<i>Fixed Effects</i>	<i>Random Effects</i>	<i>Hausman &amp; Taylor Approach</i>
Cost of Sending Remittances	-0.371** (0.156)	-0.371** (0.156)	-0.371** (0.156)	-0.371** (0.156)
Host County's Econ. Freedom	0.0361** (0.0140)	0.0361** (0.0140)	0.0361** (0.0140)	0.0361** (0.0140)
Kenya's Economic Freedom	-0.0346 (0.0211)	-0.0346 (0.0211)	-0.0346 (0.0211)	-0.0346 (0.0211)
Host County's GDP	3.777*** (0.535)	3.777*** (0.535)	3.777*** (0.535)	3.777*** (0.535)
Bilateral Exchange Rate	0.0105*** (0.00300)	0.0105*** (0.00300)	0.0105*** (0.00300)	0.0105*** (0.00300)
Source	6.048*** (1.087)	6.048*** (1.087)	6.048*** (1.087)	6.048*** (1.087)
Constant	-51.69*** (9.338)	-51.69*** (9.338)	-51.69*** (9.338)	-51.69*** (9.338)
Observations	80	80	80	80
Number of ID	2	2	2	2

*Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

*Standard errors in parentheses. Cost and GDP are in natural logs. GDP and Bilateral Exchange Rate are the endogenous variables in the Hausman and Taylor approach*

*Source: Analysis from the research data (2024)*

The coefficient of the cost of sending remitting funds is 0.371 and significant at five per cent meaning that an increase in cost by a single unit would reduce remittances by 0.371 percent. As a result of this increase in cost, Kenyan migrants will either use informal channels such as Hawalas and Hundis. Subsequently remittances sent through the formal channels such as the MTOs and banks will decrease. Thus, cost is major determinant of remittance channel. On the other hand, bilateral exchange rate's coefficient is 0.0105 and significant at one per cent. This means that a unit appreciation of the host country's currency, holding other factors constant, would increase amounts remitted through the formal channels by 0.0105 units. Therefore, bilateral exchange rates equally play a role on the channel that a migrant use.

With respect to the regional source of remittances the coefficient of the dummy is 6.048 and is significant at one percent. This means that the ranking of the remittances from the US and UK is significant. Since the dummy set to one for the US and zero for UK. The finding implies that the US remits 6.048 times as the UK. This is consistent with the trend in Figure 1.5. Kenya, therefore, benefits more from migrants who go to the US unlike those who go to the UK and further supported by a study by IOM (2022).

The coefficient of the host countries GDP is 3.777 and significant at one per cent. This means that holding other factors constant, a unit increase in the income of the host (sending) nation increases remittances to Kenya by 3.777 per cent. Therefore, Kenyan migrants tend to send more home when economic conditions improve in their host countries. This finding is consistent with those of De Sousa & Duval, (2010) and Freund & Spatafora, (2005). De Sousa & Duval, (2010) establishes that increase in sending country GDP increases remittances by about 0.7 percent to Romania while Freund and Spatafora, (2005) establishes a one per cent increase in income boosts remittances to developing countries by 0.3 per cent.

### 4.3.1 The Magnitude of Informal Remittances to Kenya

The study's first objective was to estimate the magnitude of informal remittances to Kenya. The study used a thought experiment and the results from equation 3.3 to estimate the size of informal remittances to Kenya. This approach is proposed and enunciated by Freund and Spatafora, (2005). The idea stems from the assumption that the quantity of remittances is almost inelastic to changes in the costs of sending them and that a change in the cost only influences the choice between formal and informal modalities of sending remittances. Armed with these assumptions, the coefficient of costs in equation 3.3, the percentage of formal and informal costs charged for sending remittances one can estimate the size of informal remittances with the increase in remittances when costs fall from high formal costs to low informal costs.

The coefficient of the total cost of sending remittances in Table 4.6 is 0.371 and is significant at five per cent level of significance. This implies that when the cost of sending remittances decreases by one per cent, the remittances increase by 0.371 per cent other factors held constant. This implies that transaction costs deter remittances either by quantity or the means chosen. This view is also held by Ahmed & Martínez-Zarzoso (2016), De Sousa & Duval (2010) and Freund & Spatafora, 2005)

According to The World Bank Group (2023), the actual average costs of sending a remittance of \$200 formally to Kenya from UK and US is \$13.33. Given by  $\left\{\frac{13.37+13.28}{2}\right\}$ , which is equal to 6.7 % of the amount transacted. Mohapatra & Ratha (2011) argues that, informal channels in Kenya, the Hawala, charge two to three per cent of the transacted amount. This would translate to \$4 or \$6 for every \$200 sent. Therefore, a reduction of the formal costs to the informal level would mean reducing the costs from \$13.33 to either \$4 or \$6 for every \$200 sent, a reduction of \$7.33 or \$9.33. This would imply a 69.99% or 54.99% reduction in the formal transaction costs.

The estimates in Table 4.6 shows that a one per cent reduction in the costs of sending remittances via the formal channel increases remittances by 0.371. Therefore, a reduction in the costs by 69.99% or 54.99% would cause an increase in the remittances by 25.97% and 20.40%. The size of the informal remittances flows to Kenya is therefore, between 20% and 26% of the formal remittances. This collaborates findings by *FSD Kenya, (2023)* and *Fernandes et al., (2023)*.

**Table 4.7 Sample Estimates of Informal Remittances to Kenya.**

		<i>Total Formal (USD ‘000)</i>	<i>Estimates of informal Remittances (USD ‘000)</i>	
<b>Year</b>	<b>Month</b>	<b>Remittances</b>	<b>Minimum</b>	<b>Maximum</b>
2023	December	372,569.94	74,513.99	96,868.18
	June	345,862.82	69,172.56	89,924.33
2022	December	357,298.68	71,459.74	92,897.66
	June	326,059.79	65,211.96	84,775.55
2021	December	350,562.38	70,112.48	91,146.22
	June	305,901.72	61,180.34	79,534.45
2020	December	299,579.26	59,915.85	77,890.61
	June	288,544.37	57,708.87	75,021.54
2019	December	250,307.74	50,061.55	65,080.01
	June	295,316.98	59,063.40	76,782.41

*Source: Analysis from the research data (2024)*

The sample estimates emanating from this thought experiment are shown in Table 4.7. These results show that in December 2023 informal remittances to Kenya were between the \$74 million and \$96 million.

#### **4.3.2 Host Country’s Economic Conditions and Remittances**

The second objective of this study was to examine how economic conditions in the host country influence remittances to Kenya. Table 4.6 shows that an enhancement economic freedom in the host nations by one per cent increases remittances to Kenya by 0.0361 per cent. An increase in the economic freedom in the host nation makes the

migrants more productive and with more incomes thereby leading to more remittances. Further, increased economic freedom in the host nation may permit existing migrants to remit more to their home countries leading to more remittances. Specifically, an increase in economic freedom in Kenya by one per cent reduces the remittances by 0.0346 per cent other factors held constant. This is expected as enhanced economic freedoms converts dependants into workers and business persons who hardly need assistance from the migrants. This effect is contrary to what enhanced economic freedom does in the host country. A study by Amuedo-Dorantes & Pozo, (2023) is consistent with these findings.

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND POLICY IMPLICATIONS

#### 5.1 Introduction

The chapter presents a study summary, conclusions from study findings, policy recommendations and areas for further studies based on the study's strengths or weaknesses.

#### 5.2 Summary

Formal remittances are a sustenance for Kenya's economy, surpassing traditional exports in value. They boost household incomes, improve living standards, and fuel investments in key sectors like education and healthcare. However, a considerable portion of these funds is transmitted through informal channels, evading official records. Estimating these informal remittances accurately is critical for understanding their full economic impact, promoting financial inclusion, and designing effective policies to channel more funds through formal systems, thereby optimizing resource allocation and economic planning.

This study aimed at estimating the magnitude of the informal remittances. Two objectives were formulated in order to achieve the study's main objective. These objectives were: to estimate the magnitude of informal remittances and to examine how economic conditions in the host country influence remittances to Kenya. To address the two objectives, the study used a thought experiment research design with a secondary panel data for the period 2013Q1 to 2022Q4. The data source included central Bank of Kenya, World Bank, OECD, Send Money Africa and Heritage Research.

A panel data set, for the period 2013Q1 to 2022Q4, from the United States (US) and United Kingdom (UK) was used. Panel data estimation techniques were used to analyze the data and estimate the magnitude of the informal remittances in Kenya. The

study found out that the informal remittances to Kenya range from 20-26% of the formal remittances and that remittances to Kenya are from economically free nations.

### **5.3 Conclusion**

This study sought to establish the size of informal remittances in Kenya with a view of informing policy and aiding proper recording of remittance flows. Arising from the results the study estimates that the informal remittance flows to Kenya are between 20% and 26% of the formal remittances.

The study establishes that Kenyan migrants tend to send more when the economic freedoms and economic conditions improve in their host nations. However, the Kenyan migrants reduce remittances when economic freedoms back at home improve. Importantly, the Kenyan migrants hardly consider the bilateral exchange rate when sending remittances. The regional dummy shows that Kenyan migrants in the US remit more than those in the other regions of the world. The costs of sending the remittances have a negative effect. This means that for Kenyan migrants' costs influence the choice between formal and informal channels of sending remittances since remittances are assumed to be almost cost inelastic.

### **5.4 Policy Implications**

Accurately estimating the informal remittances in Kenya is vital for creating effective government policies. This data would reveal the true extent of remittances' impact on the economy, allowing policymakers to develop strategies that fully utilize their potential for development. By encouraging people to send money through official channels, the government can increase tax income, improve access to financial services, and better monitor these transactions.

Additionally, understanding the size of informal remittances is essential for combating financial crimes like money laundering and ensuring that resources are used efficiently. This knowledge helps policymakers create targeted social programs, support businesses started with remittance money, and promote a positive environment for official remittance services.

Lastly, there is need to focus on the labour migrations to the Gulf countries. Data from the (CBK, 2024), indicate that the Saudi Arabia at 8.83% of all the remittances into Kenya where majority of the Kenyans living in the Gulf countries are labour migrants. Unfortunately, the Kenya government lacks a labour migrations database to account for all her labour migrants. As such there is need for a well-structured labour migrations database.

### **5.5 Contribution to Knowledge**

This study provides a method of estimating informal flows to Kenya. The estimated informal remittances will aid in planning and avoiding the underestimating of remittance flows to Kenya

### **5.6 Areas of Further Research.**

The sole focus of this study was estimating the magnitude of the informal remittances in Kenya and how economic conditions in the host countries affect remittances into the country. The study proposes that other studies to focus on behavioural aspects influencing remittances channels and analyze cross border dynamics of informal remittances.

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# APPENDICES

## Appendix I: Research Authorization Permits



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### Internal Memo

FROM: Executive Dean, Graduate School

DATE: 29<sup>th</sup> August, 2024

TO: Anthony Kagiri Mathenge  
C/o Economic Theory Dept.

REF: K102/CTY/21801/2021

### SUBJECT: APPROVAL OF RESEARCH PROJECT PROPOSAL

This is to inform you that Graduate School Board at its meeting of 14<sup>th</sup> August, 2024 approved your Research Project Proposal for the M.Econ Degree Entitled, "The Magnitude of the Informal Remittances Flow to Kenya: An Augmented Gravity Model Approach."

You may now proceed with your Data Collection, Subject to Clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking Forms per semester. The form has been developed to replace the Progress Report Forms. The Supervision Tracking Forms are available at the University's Website under Graduate School webpage downloads.

Also, please ensure that you publish article(s) from your project before submitting it to Graduate School for examination as per the Commission for University Education and Kenyatta University guidelines.

Thank you.

**JOHN ODONGI**  
**FOR: EXECUTIVE DEAN, GRADUATE SCHOOL**

c.c. Chairman, Economic Theory Department.

Supervisors:

1. Dr. Jackson Mdoe  
C/o Department of Economic Theory  
**Kenyatta University**

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Our Ref: K102/CTY/21801/2021

DATE: 29<sup>th</sup> August, 2024

Director General,  
National Commission for Science, Technology  
and Innovation  
P.O. Box 30623-00100  
**NAIROBI**

Dear Sir/Madam,

**RE: RESEARCH AUTHORIZATION FOR ANTHONY KAGIRI MATHENGE –  
K102/CTY/21801/2021**

I write to introduce **Anthony Kagiri Mathenge** who is a Postgraduate Student of this University. The student is registered for M.Econ degree programme in the **Department of Economic Theory**.

**Anthony** intends to conduct research for a M.Econ Project Proposal entitled, **“The Magnitude of the Informal Remittances Flow to Kenya: An Augmented Gravity Model Approach.”**

Any assistance given will be highly appreciated.

Yours faithfully,

  
**PROF. ELIUD NJAGI**  
**EXECUTIVE DEAN, GRADUATE SCHOOL**



JO/mo





REPUBLIC OF KENYA



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Date of Issue: 28/October/2024

RESEARCH LICENSE



This is to Certify that Mr. ANTHONY KAGIRI MATHENGE of Kenyatta University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: THE MAGNITUDE OF THE INFORMAL REMITTANCES FLOW TO KENYA: AN AUGMENTED GRAVITY MODEL APPROACH for the period ending : 28/October/2025.

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