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**Motivation of Remittance Senders: Evidence from Eritrean  
Immigrants in Germany**

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Andreas Knorr, Alfons Lemper, Axel Sell, Karl Wohlmuth



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## **Zusammenfassung**

Trotz der Tatsache, dass das Haushaltseinkommen in Eritrea von Geldsendungen eritreischer Arbeiter im Ausland unterstützt wird, hat bisher keine wissenschaftliche Untersuchung die Motivationsgründe für solche Geldsendungen erläutert. Diese Studie untersucht die Motivationsgründe eritreischer Einwanderer in Deutschland im Bezug auf Geldsendungen nach Eritrea. Die Analyse von Daten einer Haushaltsumfrage deutet darauf hin, dass altruistische Gründe die Hauptmotivation für Geldsendungen sind. Ein bedeutender Teil der Geldsendungen soll Familienmitglieder unterstützen. Die Daten deuten allerdings auch auf die Tatsache hin, dass eigenes Interesse die Motivation für einige Geldsendungen ist.

## **Abstract**

Despite the fact that household income in Eritrea is augmented by workers' remittances from abroad, no empirical study has been done on the motives for remittances. This paper explores the motives of Eritrean immigrants in Germany for sending remittances using household survey data. Evidence presented here largely supports the altruistic remittance behavior. A significant proportion of remittances are sent to help close family members; however, there is also some empirical evidence regarding the self-interest motive for remittances.

Stichwörter: Eritrea; Deutschland; Immigranten; Motivation;

Keywords: Eritrea; Germany; Immigrants; Motivation; Remittances

JEL-Classification: D64, F22, F24

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## 1. Introduction

Eritrea is a small East African country that became independent in 1993 after a 30-year bitter struggle for independence from Ethiopia. During the war for independence a large number of Eritreans fled their country and became refugees, mainly in Sudan. Koser (2002) wrote that there were three waves of Eritrean refugees during the struggle for independence. The first wave was in 1970s, the time when the supporters of the communist revolution in Ethiopia toppled the emperor. During this time, many Eritreans in fear of imprisonment left the country for Sudan, from where most of them were brought to North America and Europe by refugee resettlement programs. The second wave was after 1982, the time when the *Derg* initiated a large scale ‘Red Star’ campaign in Eritrea.<sup>1</sup> The third wave was at the end of the 1980s, the time when the Eritrean People Liberation Front (EPLF) strengthened its military power and started to launch a series of attacks.

The exact number of Eritreans in the Diaspora is unknown. The World Bank (2007) estimated that, in 2005, the stock of emigrants from Eritrea was 848,815, and this accounted for 19.3% of the population, the highest percentage in Africa (see Table 1). Tewolde (2005a) mentioned that between the year 1994 and 2003 around 712,185 Eritreans, almost 20% of the population, left the country, largely (around 54%) for Europe and the USA. In his paper, Koser (2003a) has stated that one-quarter of the Eritrean population (around one million) lives outside the country, of these around 250,000 live outside of Africa. For those living outside Africa, the figure indicated by Koser might be underestimated. About a decade ago, Dessalegn (1996) wrote that the number of Eritreans living in the Middle East, Europe and North America was about 300,000. One has to keep in mind that for most Eritrean emigrants (especially those who left Eritrea after independence) neighbouring countries like Ethiopia and Sudan are places of temporary stay and used as transition countries for Europe and USA.

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<sup>1</sup> The *Derg* was a military government that gained power in Ethiopia by ousting the then emperor of Ethiopian. It is the short name of the Coordinating Committee of the Armed Forces, Police, and the Territorial Army.

Table 1 Top 10 emigration countries in Sub-Saharan Africa, 2005

Country	Stock of emigrants	% of population
Mali	1,213,042	9.0
Burkina Faso	1,121,758	8.5
Ghana	906,698	4.1
Eritrea	848,815	19.3
Nigeria	836,832	0.6
Mozambique	803,261	4.1
Zimbabwe	761,226	5.9
South Africa	713,104	1.5
Sudan	587,120	1.6
Dem. Rep. of Congo	571,625	1.0

*Note:* Countries with less than one million population are excluded in this survey.

*Source:* World Bank (2007)

Eritreans in the Diaspora have strong links with each other and with communities of origin. A survey by Koser (2002) found that the majority Eritreans (living abroad) maintained contact with their relatives and had returned to Eritrea to visit families and friends within the last two years of the survey.<sup>2</sup> It is also found that most migrants send remittances on a fairly regular basis (Koser, 2003b).

Eritrea is a very poor country. It ranks 157<sup>th</sup> (out of 177 countries) on the UN Human Development Index (UNDP, 2006). Eritrea's economy has been kept afloat by remittances from Eritrean nationals living abroad. Remittances play a significant impact on the country's economy as well as on the livelihood of non-migrant household members. With the ratio of private transfers to GDP averaging 37%, the Eritrean Diaspora plays a great role in the country's external account (Yamauchi, 2004). Recent data shows that Eritrea receives US\$411 million per year from Eritrean migrants living

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<sup>2</sup> The Eritrean Ministry of Tourism estimates that some 40,000 Eritreans from Europe and North America visit Eritrea each year.

abroad (IFAD, 2006). As can be seen in Table 2 Eritrea is ranked 3<sup>rd</sup> in Africa (after Guinea-Bissau and Sao Tome and Principe) in terms of remittances in relation to GDP (IFAD, 2006).

Table 2 Top 10 African countries in terms of remittances as a percentage of GDP

Country	Remittance flow (US\$ million)	% of GDP
Guinea-Bissau	148	48.7
Sao Tome and Principe	48	39.0
Eritrea	411	37.9
Cape Verde	391	34.2
Liberia	163	25.8
Lesotho	355	24.1
Burundi	184	22.8
Comoros	85	21.1
Gambia	87	17.0
Mali	739	12.5

*Note:* In terms of the volume of remittances Eritrea is ranked 20<sup>th</sup> out of 51 Africa countries

*Source:* IFAD (2006)

Though evidence remains scarce, remittances are an important source of income for many Eritrean households. The findings from a household consumer survey in Eritrea show that 75% of the respondents receive remittances from abroad (Tewolde, 2005b). In urban areas, it is estimated that assistance from households in Eritrea and abroad account for about 60% of all transfer income, and almost one out of three households in Eritrea has income from gifts and transfers as its main source of livelihood (Arneberg and Pedersen, 2001).<sup>3</sup>

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<sup>3</sup> The term transfer income in this survey is composed of housing rent subsidy, pensions, annuities, assistance from government and non-government organization and assistance from



Despite the importance of remittances, at both a macro and a micro level, no analysis has been done on how and to what extent the socio-economic characteristics of Eritrean migrant households influence the amount of remittances sent back home. The paper addresses the question of what motivates migrant households to remit part of their income to other households. More specifically, this paper examines the motives of Eritrean migrants in Germany for sending remittances to their families in Eritrea. In this study, as we do not have information about the recipient households, the econometric analysis of migrants' decision to remit is based exclusively on information given by remitters.

Following this introduction, the rest of the paper is organized as follows. Section two reviews the existing literature on microeconomic determinants of remittances. Section three describes policies affecting the flow of remittances. Section four explains the data and outlines the econometric model applied in this study. Section five discusses the empirical results obtained and section six offers some conclusions.

## **2. Literature Review**

One of the reasons for the growing interest in international migration is because it addresses remittances, transfers of money by foreign workers to their home countries (see table 3). Remittances received by developing countries from migrants worldwide were estimated at more than US\$300 billion in 2006 (IFAD, 2006).

Remittance behaviour cannot simply be forecasted by the migrants' characteristics. This implies that there are different motivations to remit. The microeconomics literature on remittances says that migrants' motives for remitting include altruism, exchange, insurance, investment, inheritance and strategic motive.

Table 3 Worldwide remittance flows to developing countries, 2006

Region	Total Number of migrants (in million)	Total remittances (US\$ million)	Annual average remittances per migrant
Africa	29,200	38,895	1,358
Asia and the Pacific	50,616	113,946	3,126
Europe	25,427	50,805	1,881
Latin America and the Caribbean	30,403	68,062	2,128
Near East	17,291	29,678	2,679

Source: IFAD (2006)

The most obvious motivation to remit is because migrants care about the wellbeing of their families in the home country (Becker, 1974). This implies that remittances present altruistic payments to those left behind such as immediate family members, and members of large kinship and social circles. Altruism refers to situation in which the transfer does not entail any present or future compensation nor does it represent payment for any past debt (Lopez-Cordova and Olmedo, 2006). An altruist is willing to sacrifice own resources in order to improve the wellbeing of others (Fehr and Schmidt, 2005). Thus, altruism can be taken as a potential explanation of remittances if income transfers have no exchange motive (Lucas and Stark, 1985; Funkhauser, 1995).

As stated by Barro (1974) altruistic households could neutralize the effect of public income redistribution by adjusting their own private intergenerational transfers. If households are altruistically linked, the changes in private intergenerational transfers could undo the forced intergenerational transfers associated with social security (Cox, 1987). Focusing on a large increase in state old age pensions in South Africa Jensen (2003) found that government transfer programs crowded out private transfers from children living away from home. Another example that could be neutralized by altru-

istically motivated transfers is public spending on education and health, aid and minimum wage legislation (Cox, 1987; Cox, Eser and Jimenez, 1998).

There are many empirical studies that support the altruistic motive for remittances. Jonson and Whitelaw (1974) found that the motives for sending money from Nairobi to all areas in Kenya were determined by altruism. For Eritrea, the main reason reported for remittance flows is primarily to support families in Eritrea (Tewolde, 2005b). Taking Malawi as a case study, Chipeta and Kachaka (2004) found evidence of an altruistic motive for remittances. The study by Bouhga-Hagbe (2004) suggests that altruistic could be one of the main long-run determinants of workers' remittances to Morocco. For Egypt, Jordan, Morocco, Pakistan and Tunisia, Bouhga-Hagbe (2006) found evidence of altruism in workers' decisions to send money home. Agarwal and Horowitz (2002) have found that Guyanese migrants behave altruistically. For Thailand, VanWey (2004) has estimated that women and migrants from poorer households behave more altruistically. Garip (2006) found that altruism was the main motivation for young adults in Thai villages to migrate to urban centers and remit their earnings to support their families. Benerjee (1984) suggests that the purpose for which remittances are sent by internal migrants in Delhi is best seen as an indicator of the nature of utility functions of remitters. The transfer behaviour in low-income rural areas of South Asia shows that altruism plays an important role in ameliorating commitment-constraints and thus in increasing the gains from income pooling (Foster and Rosenzweig, 2001).

Migrants do not remit purely for altruistic considerations. The fact that remitters and recipients are spatially differentiated creates room for the expansion of additional motives (Rapoport and Docquier, 2005). Migrants may send remittances in exchange for non-monetary help from other non-migrant household members, for instance in the form of child care or when taking care of the migrant's assets.

The exchange motive for remittances is generally taken as a sign of temporary migration and signals migrant's intention to return (Rapoport and Docquier, 2005). The exchange motive also refers to repayment of loans borrowed by the migrant to cover his/her migration costs or education (Durand et al., 1996; Rapoport and Docquier,

2005; Lopez-Cordova and Olmedo, 2006). The idea of remittances as a repayment of loans has some similarity with the implicit and informal loan arrangement between family members. For Botswana, Lukas and Stark (1985) and for Kenya, Hodinott (1992) found empirical evidence that partly supports the exchange motive for remittances. Using a household survey for Peru, Cox, Eser and Jimenez (1998) found a result that contradicted the altruistic hypothesis but is consistent with exchange. Cox (1987) and Ilahi and Jafarey (1999) show the observed patterns for inter-vivo transfers are in harmony with the exchange-related motives. Cox and Rank (1992) also show that empirical patterns for inter-vivo transfers are more consistent with exchange than altruism.

Another motive for remittances is insurance. This motive suggests that migrants send remittances to reduce uncertainty and thus it is very common in low-income rural areas where people depend on agriculture but weather is unpredictable, land is immobile, technology is stable, cost of acquiring information is high (Rosenzweig, 1988). In addition, market failures prevent any type of credit (Lopez-Cordova and Olmedo, 2006) and government-sponsored social insurance is generally poor or non-existent (Yang and Choi, 2005). Further, rural areas are generally characterized by risks of crop failure, price fluctuation, insecurity of land tenancy, livestock disease and inadequate availability of agricultural wage work (Stark and Levhari, 1982). In such a situation a household allocates one or more members of the family out of agriculture to urban areas or abroad to insure the remaining members of the family against income uncertainty (Lucas and Stark, 1985; Rapoport and Docquier, 2005). As an intra-family arrangement one expects that those members of the family who have high income potential and degree of loyalty to their family are often the ones selected to migrate. Migrants might be denied the right to future family solidarity, inheritance or return to the village, if they failed to fulfill their duties of sending remittances (Rapoport and Docquier, 2005).

Evidence of the insurance motive to remit is provided by the studies of Lukas and Stark (1985) in Botswana, Lambert (1994) in Cote d'Ivoire, Gubert (2002) in Western Mali, Aredo (2005) in Ethiopia and Stark and Levhari (1982) in less developed countries. For Thailand Paulson (2000) and Paulson and Miller (2000), for Philippines

Lauby and Stark (1988) and Yang and Choi (2005), for Mexico Amuedo-Dorantes and Pozo (2006), for Columbia Cox and Jimenez (1998), for India Seiler (1998) and for Dominican De la Briere et al. (2002) also found evidence of an insurance motive for remittances.

Unlike the insurance motive, the aim of remittances as a family loan arrangement is to increase family income. There is an argument that such an investment opportunity is more advantageous for rich families because migration is costly. There are a number of empirical studies that support the investment motive for remittances. Foster (1995) and Brown (1997) for small Pacific Islands, Durand et al. (1996) for Mexico, Aydas, Neyaopti and Metin-Ozcan (2004) for Turkey and Schrooten (2006) for Russia found evidence consistent with the investment motive to remit.

Under the inheritance motive, the migrant sends remittances back home because he/she intends to inherit family assets and wealth. Hoddinott (1994) supported the argument that the flow of remittances to western Kenya was partly a function of the ability of parents to offer rewards. For Cameroon, Schrieder and Knerr (2000) found that the reason for sending remittances was to keep sizable inheritances. Akkoyunlu and Kholodilin (2006) found that part of the remittances sent to Turkey was also motivated by inheritance seeking. De la Briere et al. (2002) have found that remittances to Dominican Republic reflect an investment in future inheritance. VanWey (2004) has found that men and migrants from richer households in Thailand behave more contractually, which this also includes the future transfer of land through inheritance. Possibility for inheritances is also found to be one of the significant influences on level of remittances by rural to urban Nepalese migrants (Regmi and Tisdell, 2002).

The strategic motive for remittances assumes that high-skilled migrants transfer to low-skilled workers to induce them to remain at home. Here, the reason for remitting is pure self-interest, in the sense that high-skilled migrants, by sending remittances to low-skilled workers, protect their wages against competition from potential migrants. The strategic motive arises when migrants are heterogeneous in skills and individual productivity is not perfectly observable on the labour market of the host country (Rapoport and Docquier, 2005; Akkoyunlu and Kholodilin, 2006). In such a case, mi-

grant workers receive a wage based on the average wage of the minority group to which they belong. Thus, high-skilled migrants send remittances (as a bribe) to unskilled people from their country so as to keep them in the home country.

One can categorize the investment and insurance motive as a familial arrangement and the rest four (altruism, exchange, inheritance and strategic) as individualistic motives. It should not be expected to assume a migrant as having only one motive to remit. As mentioned by Rapoport and Docquier (2005), different motivations to remit may coexist within the same individual. Certain variables can also have similar effect, irrespective of migrants' motive for remittances. For instance, migrant's income has a positive effect on remittances under all types of motives except for the insurance motive, for which income has no direct effect (Rapoport and Docquier, 2005). Thus, a large number of household socio-economic variables should be included in a model to deeply analyze the factors affecting the flow of remittances and the motives of private transfers.

### **3. Policies Affecting the Flow of Remittances**

Many remittance-receiving countries have adopted policies that encourage migrants to remit. While some countries have endorsed mandatory remittances requirements, others have implemented incentive schemes.<sup>4</sup> In its Global Economic Prospects 2006, the World Bank (2006) has pointed out the various policies in remittance-receiving countries. These include tax on incoming remittances, travel and customs privileges for return and imported goods, relaxation of exchange capital account, allowing domestic banks to operate overseas, support to hometown association, loans and bonds targeted at the Diasporas, etc.

Soon after independence, the Eritrean government tried to improve the management of foreign exchange resources and the competitiveness of Eritrean products by introducing a number of liberalization measures such as the introduction of preferential exchange rate, introduction of *franco-valuta* system, elimination of foreign exchange

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<sup>4</sup> Countries that have implemented mandatory remittance requirements include South Korea, Bangladesh, Egypt, Pakistan, the Philippines, Thailand and Eritrea (Carling, 2005).

declaration requirements and allowing full retention of foreign exchange earnings for exports (Ghebreselassie and Burger, 2003).<sup>5</sup>

Since 1993, every Eritrean adult in the Diaspora has been asked (as a mandatory requirement) to contribute 2% of their income to the government (Carling 2005; World Bank, 2006). To be eligible for government services Eritrean citizens living abroad have to show proof that they paid the 2% tax on their annual income to the government. A number of other incentive schemes for encouraging the flow of remittances have also been implemented by the government. Subscription of special bond issues for nationals living abroad as an alternative means of encouraging migrants to remit through official channels, land for emigrant program that provides quick and easy exchange of hard currency, permission to hold foreign currency accounts by migrants in their home country and intensification migrant association capacity to engage in projects in their country of origin are the ones that are widely used in practice.<sup>6</sup> In 1999, it was estimated that some US\$20 million worth of bonds was purchased by Eritreans in North America, the same amount in Europe and US\$15 million in the Middle East (Koser, 2003a). By selling housing plots and land (to Eritreans in the Diaspora) for payments in hard currency the government has been influencing the flow of remittances to the country. The Housing and Commerce Bank of Eritrea is now ready to sell houses (to accommodate up to 800 families) in hard currency at a price ranges from US\$97,000 to 139,000 per house.<sup>7</sup>

To boost foreign currency reserves and control unfair trade practices the Bank of Eritrea issued a legal notice in 2005 (Shabait, 2005). According to the new legal notice, remittances and exchange of currency are restricted to be effected through banks and formal financial services. It is no longer allowed to bring into Eritrea undeclared foreign currency and to import goods and services on *franco-valuta*. This implies that

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<sup>5</sup> *Franco-valuta* is a system permitting the private repatriation of hard currency by traders and overseas workers without bank application.

<sup>6</sup> The Eritrean Development Fund (EDF) in USA, EriTree in Canada and Eritrea-Hilfswerk in Germany are examples of Eritrean associations in the Diaspora engaged in development activities.

<sup>7</sup> For more information on the housing project visit <http://www.halibet.com>

importers who obtained foreign exchange abroad (from migrant workers) or buy hard currency on the black market are not permitted to import goods into the country. Eritrea has very small foreign currency reserves and thus prohibition of *franco-valuta* imports will definitely create shortage of imported goods and services, thereby increasing practice of inflation and encouraging contraband activities and capital flight.<sup>8</sup> The introduction of *franco-valuta* system is helpful if a country's foreign exchange reserves are limited so that it is difficult for the national bank to issue a letter of credit for any import. In 2002, the value of imported goods on *franco-valuta* accounted for 99.6% of the total value of imports to Eritrea (Bank of Eritrea, 2005). Of course the permission of *franco-valuta* system helps the activity of monetary exchange outside the authorized institutions to proliferate. Besides, the government can be hindered from collecting the required import duties, as invoices for goods imported on *franco-valuta* basis can be easily fabricated by importers to help them pay less ad valorem import tariff. But, it would be better if the government creates conducive environment for formalizing the parallel market for foreign exchange, which this, in turn, creates an opportunity for the establishment of private banks.

Though the official exchange rate has per decree been increased and remittance-receiving households (through official channels) do not incur service fees, the legal notice neither drastically reduces the flow of remittances through unofficial channels nor encourages migrants to send more remittances through official channels. As long as the black market exchange rate is higher than the official rate informal money transfer systems will not cease to exist. People may be forced to use the *hawala* system consequent upon the issuance of the new legal notice.<sup>9</sup>

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<sup>8</sup> As of 2004, it was estimated that the country's foreign exchange reserves were equivalent to 0.36 months of imports (ADB, 2006).

<sup>9</sup> A *hawala* system works by transferring money (via a network of *hawala* brokers, known as *hawaladars*) without actually moving it.



## **4. Empirical Analysis of Reasons for Sending Remittances**

### **4.1 Data Source**

There is no sample frame for Eritreans living in Germany. However, it is known that a sizeable concentration of Eritreans lives in Frankfurt am Main and its environs, which permitted the construction of a sampling frame without reducing the importance of the analysis. The data used in this study were collected by the author in Frankfurt am Main and its environs between January and December 2006. The survey contained detailed information on both individual and household level demographic and socio-economic characteristics. Generally, survey respondents were household heads; however, some of the questions were answered by best-informed household members, if the head of the household did not know the answer to a particular question.

The survey gathered information from personal interview questionnaires filled out by a sample of 98 households, covering 208 persons. Over 50 % of the sampled households responded that they sent remittances both in cash and in kind, and the average total amount remitted by each household was 1,424 Euro per year. The average yearly income for the sampled households was 21,105 Euro, implying that 6.7% of the average household income was remitted. Since migrant households might have different reasons for sending/bringing remittances, respondents were allowed to choose multiple responses. Thus, around 99% of migrant households responded that one of the reasons was to help close family members. For 32% investment in parents' business enterprises and/or assets at home was among the reasons for remitting.

The average number of people living in each migrant household was 2.1.<sup>10</sup> The average age of household's head was 37.4 and the percentage of households headed by male was around 65%. The average years of schooling of the household head were 12.07 and about 85% and 39% of the household heads were respectively employed and not married.

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<sup>10</sup> In this survey, household members imply all individuals who have shared the same budget during the last six months prior to the survey

During the survey, the average number of years since the household head left Eritrea was 14.3 and about 24% of the heads of household had a temporary residence permit. For most household heads (over 80%) the reason for coming to Germany was asylum seeking and almost 78% had intention to leave Germany and go back to Eritrea sometime in the future. When asked about household wealth and asset ownership around 90% of the households surveyed responded that they owned at least one item that measures wealth and asset.<sup>11</sup>

The average number of migrant households' closely related family members living in Eritrea and/or in developing countries was 4.7.<sup>12</sup> On average, the number of dependents in recipient's household was 2.4.

#### **4.2 Method of Estimation**

Most of the studies that empirically analyze the motives for sending remittances follow two alternative approaches when some individuals in the survey do not remit positive amounts in a given period. One approach, which is known as the Heckman's two step procedure or Heckman's generalized Tobit model, is to model the probability of transfer and then use corrected Ordinary Least Squares (OLS) to model the amount remitted. Here, remittances are treated as a sequential two step decision. The first step decision is whether to remit or not and the second step decision is the amount of transfer. While the first step analyzes the effect of a given variable on the decision to transfer, the second step estimates the effect of a given variable on the level of transfer. Another approach, which is also known as a censored Tobit model, assumes that the decision to remit and the level of remittances are made at the same time.

In this paper, the motives for sending remittances are estimated using OLS method because all randomly selected respondents sent remittances in 2006. The reason for this might be because the incidence of poverty in Eritrea is very high and thus Eritrean migrants in developed countries have greater social responsibilities and obliga-

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<sup>11</sup> Items asked were vehicle, land, house, savings, shares and bonds, superannuation fund, etc.

<sup>12</sup> In this survey, closely related family members include parents, children, brothers and sisters, and it applies to both husband and wife.

tions to help their family back home. It is estimated that the poor in Eritrea constitute about 66% of the population, of which 37% are extremely poor (GSE, 2004).

In our model, the amount remitted during 2006 by Eritrean migrants in Germany is regressed on a vector of transfer determining variables presented in Table 4. Using OLS method, the remittance equation can be expressed as:

$$\ln \text{Rem}_i = \beta X_i + u_i, \quad (1)$$

where  $\ln \text{Rem}_i$  is the log of remittances (both cash and in-kind) sent by the  $i$ th migrant household in 2006 and  $X_i$  is a vector of regressors for household  $i$  and  $\beta$  is a vector of regression coefficients to be estimated.

Assuming individual and household socio-economic characteristics of migrants play a great role in remittance decision, the estimated regression equation can be written as:

$$\begin{aligned} \ln \text{Rem}_i = & b_0 + b_1 \text{male} + b_2 \text{umar} + b_3 \text{age} + b_4 \text{age}^2 + b_5 \text{sch} + b_6 \text{rept} + b_7 \text{year} + \\ & b_8 \text{emp} + b_9 \text{inc} + b_{10} \text{weas} + b_{11} \text{hhm} + b_{12} \text{hdep} + b_{13} \text{int} + b_{14} \text{erdg} + b_{15} \text{devd} + \\ & b_{16} \text{help} + b_{17} \text{save} + b_{18} \text{invt} + b_{19} \text{invp} + b_{20} \text{migr} + b_{21} \text{rdep} + e_i \end{aligned} \quad (2)$$

Evidence shows that remittances increase with migrant's income for all types of motives except for the insurance motive which cannot be determined (Rapoport and Docquier, 2005). However, for the other explanatory coefficients, no consistent relationship with remittances was found.

Table 4: Definition of variables and sample statistics

Variable	Description	Mean (std)
Male	Dummy variable =1, if household head is male	0.6531 (0.47844)
Umar	Dummy variable =1, if household head is unmarried	0.3878 (0.48974)
Age	Household head's age	37.3571 (8.05042)
Sch	Household head's years of schooling	12.0714 (2.84025)

Rept	Dummy variable = 1, if household head has a temporary residence permit	0.2449 (0.43224)
Year	Years since household head left his/her country	14.3469 (7.92536)
Emp	Dummy variable = 1, if household head is employed	0.8489 (0.36190)
Inc	Dummy variable =1, if household's yearly income is greater than or equal to the median value, which is 19,500 Euro	0.50 (0.50257)
Weas	Dummy variable =1, if household's wealth and asset is greater than or equal to the median value, which is 7,000 Euro	0.4898 (0.50247)
Hhm	Average number of household members	2.1224 (1.45917)
Hdep	Dummy variable = 1, if the household has dependent children	0.3163 (0.46743)
Int	Dummy variable =1, if household head intended to return	0.7755 (0.41939)
Erdg	Average number of household's close family members in Eritrea and /or developing countries	4.6735 (2.72361)
Devd	Average number of household's close family members in developed countries	1.7347 (1.77352)
Help	Dummy variable = 1, if reason for sending remittances is to help family members	0.9898 (0.10102)
Save	Dummy variable = 1, if reason for sending remittances is to save in household's savings account	0.1122 (0.31729)
Invt	Dummy variable = 1, If reason for sending remittances is to invest in the household's business enterprise	0.0102 (0.10102)
Invp	Dummy variable = 1, if reason for sending remittances is to invest in parents' business or renovate parents' home	0.3163 (0.46743)
Migr	Dummy variable = 1, if reason for sending remittances is to help family members to migrate	0.3469 (0.47844)
Rdep	Average number of dependent children in recipient's household	2.3776 (2.61051)
Rem	Average yearly household remittances in Euro	1424.1531 (1385.43887)

*Note:* The creation of dummies for “Inc” and “Weas” using median values is to lessen the effect of outliers.

## 5 Results

The evidence from the estimated regression presented in Table 5 shows that the motivation for sending remittances to Eritrea is largely altruism, though there is an indication of pure self-interest. The significant positive coefficients on “Help” and “Rdep” reveal evidence in favour of altruistic motives for remitting. The positive association between remittances, migrants’ intention to return home and migrants’ desire to invest in parents’ business or assets at home implies that reasons to remit also include self-interest. The longer the duration of stay abroad, the less the amount a migrant is likely to remit. One possible reason for this is the so called “reunification effect”, meaning that migrants’ duration of stay abroad is negatively associated with the number of dependants at home and hence their level of need for remittances. However, this is not necessarily a sign of remittance decay because migration is a dynamic process.

Table 5 Estimated remittance equation using OLS (dependent variable: the natural logarithm of yearly migrant household remittances sent)

Variables	Coefficient estimates
Constant	2.689 (1.910)*
Male	0.269 (1.696)*
Umar	0.524 (2.637)***
Age	0.097 (1.857)*
Age^2	-0.001 (-1.886)*
Sch	-0.067 (-2.270)**
Rept	-0.522 (-2.485)**
Year	-0.031 (-2.194)**
Emp	0.155 (0.694)
Inc	0.336 (1.739)*
Weas	0.019 (0.109)
Hhm	0.050 (0.598)
Hdep	-0.080 (-0.340)
Int	0.332 (1.888)*

Erdg	0.049 (1.699)*
Devd	0.017 (0.422)
Help	2.158 (3.191)***
Save	0.060 (0.219)
Invt	0.241 (0.328)
Invp	0.419 (2.628)***
Migr	0.121 (0.742)
Rdep	0.050 (1.736)*
Adjusted $R^2$	0.339
$F$ -statistic	3.372
Observations	98

Note: Values in parentheses are  $t$ -statistics. Asterisks indicate level of significance; \*, significant at 10%; \*\*, significant at 5%; \*\*\*, significant at 1%.

Under altruistic hypothesis, the prediction by Rapoport and Decquier (2005) shows a negative sign for the coefficient on time since arrival. Generally, the amount of remittances rises when household income of migrants increases but decreases for household heads with temporary residence permit. The fact is that migrants with temporary residence permit face difficulty in getting jobs. It is also found that the correlation between having a temporary residence permit and not working is positive. In terms of education, migrants with higher levels of schooling are less inclined to remit. A possible explanation is that migrants with better education tend to originate from parents who have less need to be supported. It might also be an indication of the weak effect of schooling on earnings for immigrants. In this study, the correlation between years of schooling of the household head and household total income is only 0.255, implying a weak relationship. Unmarried household heads tend to send higher remittances, probably because married household heads need to support their immediate family living with them. Male household heads are more likely than female heads to remit, which might be due to the fact that, in a married family, the male is usually the head of the household, implying that households headed by men have higher household in-

comes than female-headed households, which consist of either a single female parent or a one member household.

As age provides a rough proxy for work experience, it gives some indication of the earnings potential of the migrant. Thus, remittances increase with age of the household head; however, the shape of the relationship is concave, implying that household head age has a diminishing effect on remittances. As expected, the size of remittances increases with the number of household's close family members living in Eritrea and/or in developing countries. Though the coefficient on close family members in developed country is not significant, it gives an indication of the altruistic motive for sending remittances. It is not important for migrants motivated by altruistic to consider the potential of remittances that could be sent by their close family members living in other developed countries, as remittances are sent out of affection.

## **6. Conclusions and Policy Implications**

The main objective of this study is to explore the motives of Eritrean migrants in Germany for sending money back home. The existing literature on remittances shows that there are a number of reasons for sending remittances, which these include altruism, inheritances, exchange and investment. Based on migrants' stated motivations to remit, both the descriptive statistics and empirical results indicate that the main reason for sending remittances to Eritrea is altruism. The findings have also provided support for the view that self-interest could be playing a role in migrants' decisions to remit.

These results have important policy implications. To increase the volume of remittances, efforts should be made by the government to strength the infrastructure supporting remittances and introduce mechanisms to leverage remittances for development. Besides the need to pursue sound macroeconomic policies, overregulation and taxes on remittances should be avoided.

Previous studies have documented that attempts at state control of remittances tend to

result in increased informal transfers and thus policy measures that are in the form of incentives generally work better (El-Sakka, 2005). There are several ways to increase formal remittances, including liberalized foreign exchange regime, repatriable foreign exchange accounts, premium interest rate policy, premium exchange rate policy, auction of foreign exchange, and premium interest rate accounts (Connell and Brown, 2005).

Within an appropriate regulatory framework, the Eritrean government should allow private foreign exchange bureaus to operate freely. The government should foster a remittance policy at national level as part of a broader set of reforms aimed at modernizing the financial system to allow financial institutions to compete successfully. As part of a remittance policy the government should also focus on redirecting some of the remittances towards investments, and provide incentives for Eritreans abroad to contribute towards the development of their communities at home. The government should promote the establishment of institutions that encourage the repatriation of remittances and complement them with government programs to promote the creation of small scale enterprises. Instead of totally prohibiting the *franco-valuta* system it would be preferential if migrants were allowed to import machinery and equipment for investment purpose.

As stated by Siri and Calderón (1996) remittance policies should aim to: increase the flow of remittances and channel migrants' savings into national financial institutions; and promote savings and investment among the receiving households in the country of origin

To do so, however, the restoration of confidence between the government and the Eritrean community in the Diaspora is important. This can be achieved by initiating information campaigns within the Diaspora and creating a stable business environment in Eritrea.



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