

Migrants' Remittances and Economic Growth in Sub-Saharan Africa

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Abstract: Migrants' Remittances to developing countries have exceeded 200 billion U.S. dollars according to the World Bank. Despite the importance of these flows, few studies have investigated their potential positive effects on economic development of the migrants' origin countries. Specifically, Sub-Saharan Africa (SSA) has received little attention in studies and discussions on remittances. This could be explained by the relatively small share of remittances received by this region, only 6% of remittance flows to developing countries in 2008. Studies on this subject have been mostly in the form of case studies at the microeconomic level of individual countries or in the form of reports even if the region receives 21 billion dollars of remittances with an increase of almost 254% between 2003 and 2008 as estimated by the World Bank. The objective of our study is to contribute to the weak and recent literature on macroeconomic impact of migrants' remittances in Sub-Saharan Africa by estimating the impact of remittances on the long term growth. Our sample consists of 28 SSA countries that have sufficient data for the period 1980-2004. Data are from *World Development Indicators 2006* (World Bank) and various other data sources. We used Two Stage Least Stage (TSLS) instrumental variable method to estimate the growth equation. The econometric results show that remittances do not have direct positive impact on economic growth in SSA. However, remittances may have indirect positive impact on growth through several channels such as investment or education.

Keywords: economic growth, SSA, migration, remittances, institutions

JEL Classification: F22, O15, J61, C33, F24

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Introduction

The first literature on migration had been focused primarily on understanding and explanation of migration (determinants) and the microeconomic impact of remittances. This literature had a pessimistic view of remittances and migration in general and was dominated by the idea that remittances could not contribute to recipient countries growth, because these funds are mostly used to meet basic consumption needs or subsistence. To this literature, there are drawbacks to the flow of money sent by migrants as the country that receives them can easily become dependent on this source of income, largely vulnerable to changes in economic, political and social conditions of migrants host countries. Some studies have said from the late 1960s until the late 80s that remittances do not promote local development since they are used for consumer spending subsistence rather than productive investment. For these authors, households spend the largest portion of funds received for the purchase or construction of houses, purchase of food, clothes and consumer goods (at ceremonies such as weddings , baptisms ...) or even to repay debts while very few of these funds were intended for investment in productive activities.

Rempel and Lobdell (1978) found that, in addition to being devoted mainly to expenditure on daily consumption or housing, remittances are in some cases a means of maintaining traditional systems in rural areas. The beneficiaries are opposed to structural changes and a more productive use of remittances. Households are sure to receive remittances, they would not need to adapt to a changing environment to meet their needs². Lipton (1980) estimated that purchases of consumer goods related to the needs of everyday absorb about 90% of remittances received. Similarly, 89% of remittances sent by sub-Saharan migrants in France were spent on basic needs according to Conde et al. (1983) and 68 to 86% of Mexican migrants savings were used for consumption according to Massey et al. (1987)³. Moreover, literature also suggests that remittances distort social development since only households that have a member

² A complete literature survey on micro-use of remittances was done by Taylor and al. (1996).

³ From Taylor and al. (1996).

abroad benefit in it, which creates disparities in household wealth and increased social inequalities.

However, it is now increasingly accepted that this pessimistic view was based especially on low and limited empirical analysis conducted with unreliable data in most developing countries. Moreover, this view ignores the often indirect and multiplier effects that can cause remittances within the entire community, including households with no members abroad. It does not take into account the fact that apart from direct investment made by migrants or recipients of funds, the productive use of remittances can be done through several other channels such as “managing remittances by banks and development of the financial system that may result, the extension of credit for investment made possible by the gain in household credit for recipients and increasing the liquidity of banks due to deposits of remittances, increasing the demand and therefore production through consumption of remittances, investment in human capital as education and access to health care, buying more property technological content goods abroad, etc”, Glytsos (2001, p.5).

Taking into account these effects at the community level in addition to the direct effects and when using more advanced econometric methods, very different and much more optimistic results emerge (Taylor et al. (1996)). Thus in recent years, the increase of remittances has led most of development actors to consider remittances as an important source of external finance for developing countries.

However, few studies have been conducted on the relationship between remittances and economic growth at the macro level of all developing countries and even less at the sub regional level in SSA.

Faini (2002, 2007) using panel model finds a positive impact of remittances on growth in developing countries and a healthy political environment increases this impact. According to this author, remittances, by loosening financial constraints, enable agents to undertake.

Giuliano and Ruiz-Arranz (2008) examine the link between remittances, financial development and growth in 70 developing countries covering the period 1975-2002. According to their results, these remittances offset the underdeveloped financial system by easing credit constraints on the poor and financing productive investments that

stimulate growth. In economies where the financial system is underdeveloped, remittances act as a substitute for financial development and improve capital allocation. The authors state that there is an investment channel through which remittances positively affect growth in countries where financial system does not meet the credit's needs of the population.

Chami et al. (2003) highlight the presence of moral hazard effect of remittances that adversely affect economic growth. Their study covering a sample of 113 countries over the period 1970-1998, shows a negative relationship between funds received and growth. Indeed, for these authors, the recipient, who is guaranteed to obtain remittances in case of bad results, is not motivated and incited to work and may reduce his work effort while keeping the same level of income, which is harmful for growth. Thus, they conclude that these funds can not be regarded as a source of capital for economic development. A study by the IMF (World Economic Outlook 2005) covering 101 countries over 1970-2003 finds no significant relationship between remittances sent by migrants and growth as well as between remittances and variables such as education or investment rates. Catrinescu et al. (2008) taking into account the institutional variables found a positive impact although fragile. The sign of remittances and the significance of the coefficient associated with it change easily depending to the econometric model and institutional variables introduced. Mundaca (2005), Pradhan et al. (2008), Zazzaro and Bettin (2008) also found some positive and significant results, depending to the econometric specification adopted or variables of financial development taken into account. Fayissa and Nsiah (2008) leading the only study on this topic devoted to Sub-Saharan Africa show a positive and significant result. According to these authors, remittances would not be only oriented to unproductive spending. A portion is invested in productive activities that contribute to economic growth.

It thus appears that studies of the link between remittances and growth at the macro level have generally been conducted for all developing countries and the results are very mixed. Studies considering only the case of SSA are almost nonexistent. This could be explained by the relatively small share of remittances received by this region, only 6% of remittances flows to developing countries in 2008. Studies on SSA on this subject have been mostly in the form of case studies at the microeconomic level of

individual countries or in the form of reports even if the region received nearly 20 billion dollar of their migrants in 2008 with an increase of almost 231% of flows between 2003 and 2008 as estimated by the World Bank (Table 1).

But the results found for all developing countries may not apply to sub-regions considered in alone. There are specificities for Sub-Saharan Africa including weak institutions, political instability, low amount of remittances received compared to that for all developing countries, or relatively low development level. All these factors can lead to a different use and impact of remittances on growth in SSA compared to the sample of developing countries taken together. For example, given the greater poverty in this region, households could use more remittances to subsistence consumption rather than productive investment, while in economically more advanced regions, households may already have an income that exceeds the income threshold of subsistence consumption and could therefore more easily invest the money received.

We wanted to fill in this low interest of the literature on the macroeconomic impact of remittances sent by migrants in Sub-Saharan Africa by examining the impact of remittances on economic growth.

After introduction and literature survey in this first part, Section 1 will describe data. Respectively, sections 2 and 3 present the econometric methodology and estimation results and their analysis.

1. Data and Variables Description

The lack of continuous observations for many countries in our study period of 1980-2004 made a number of countries not included in the final estimation. Only 29 of the 48 SSA countries are considered in the estimation. In estimating the relationship remittances-growth, we rely on the economic literature that highlighted a number of variables as determinants of growth. Table 2 provides variable definitions and data sources. The variables in the estimation are:

Dependent variable:

GROWTH : Average growth rate of real GDP per capita of the country on the date t which is here 3 years and expressed as annual rate.

Explanatory variables:

GDPPC_{in} : GDP per capita initial in \$ constant which allows to consider the initial endowments of countries with the aim of capturing the convergence phenomenon between economies (Barro and Sala i Martin 1996).

REMIT : Migrants Remittances as a percentage of GDP. Remittances are defined by IMF as the sum of workers remittances, compensation of employees and migrants' transfer (see Appendix 1 for a more detailed definition). However as already pointed out by OECD and many other studies, there is confusion in remittances recording, which can seriously affect the comparability and reliability of data. Remittances are often misclassified as export revenue, tourism receipts and deposits of non resident. According to Gubert (OECD 2006), even data from the recording method of the IMF are very limited and confused and seriously call into question the estimations. First, the calculation of remittances flows by the IMF method overestimates the actual flows as a share of compensation of employees is the gross wage of which a part is necessarily spent in the host country and is never remitted, and secondly that compensation includes the salary of individuals who are not even migrants such as local staff of embassies (who works in his own country), consulates and international organizations based abroad but operating locally.

Moreover, these flows may also be largely underestimated because they do not include remittances through informal channels (cash sent through friends or family members, remittances in kind: jewellery, clothing, electronics and other consumer goods ...). Some studies (World Bank (2006)) consider these informal flows to over 50% of total official remittances recorded. When recording in-kind remittances, the country torn between recording as remittances or as goods import.

But despite these shortcomings, data from World Development Indicators and the “Balance of Payment Statistics Yearbook” of IMF are the best and by far the most comprehensive source of information on remittances to the macro level.

ODA : Official Development Assistance or Foreign Aid as % of GDP. Development aid is introduced to capture the impact of an external source of capital on growth (Burnside and Dollar (2000), Easterly, Levine and Roodman (2003)).

POP : Population growth is measured by the percentage of population under 15 years and takes into account the effect of population pressure (Becker (1982)).

OPEN : Degree of economic openness measured by the ratio of the sum of exports and imports as a percentage of GDP (Sachs and Warner (1995))

EDU : Enrollment in secondary education as a percentage, a variable representing the level of human capital considered as a determinant of growth (Lucas (1988), Barro (1991, 1997), Romer (1990), Barro and Sala i Martin (1996))

GOV : Government Consumption as % of GDP.

INF : Inflation measured by the change in the index of consumer prices, considered as an indicator of monetary policy of the country (Fisher (1993)).

INV : Domestic investment measured by the ratio of gross fixed capital formation to GDP.

M2 : Money supply to GDP, which is an indicator of financial development (King and Levine 1993).

POLIT : Political rights, dummy of institutional environment regarded as affecting growth (North (1990), Acemoglu et al. (2001); Rodrik (2002), Eicher and Penalosa

(2003)). The World Bank has built a number of governance indicators (Worldwide Governance Indicators) published by Kauffmann and al. (2008). But the data are only available for the periods 1996, 1998, 2000 and from 2002 to 2006, what is not sufficient to use these data for long term continuous series estimations. Governance variables vary little from one year to another, using the period from 2002 to 2006 on which data are continuous is not appropriate for 3- year moving averages and panel data framework. For this, we can not use these data. Political and institutional data used come from the “*World Country Ratings of Freedom House*” database. This database collects data on indicators including several elements of political and institutional life that have been aggregated over a period from 1972 to 2006. The indicator, called "political rights", is comprised between 1 and 7, with 1 representing the highest degree of political rights and 7 the lowest. To facilitate the interpretation of the coefficients of this index in our estimations, we construct a variable equal to:

$$POLIT = 7 - POLITICAL RIGHTS INDEX FROM FREEDOM HOUSE$$

The new indicator will be comprised between 0 and 6, with 0 representing the lowest level of institutional quality and 6 the highest level.

Tables 2 to 4 present variables definitions, source of data, descriptive statistics and correlations for all selected countries over the period 1980-2004.

The average annual GDP per capita growth rate in SSA was only 0.72% over the period 1980-2004. While remittances flows in constant dollars to SSA followed the general trend upward and have almost doubled between 2005 and 2008, reaching over 21 billion U.S. dollars (Table 1), they have averaged only 2.83 % of GDP. The correlation test shows a positive relationship between remittances and growth, but negative correlation between remittances and GDP per capita. This result seems logical as we know that remittances are primarily sent for altruistic reasons (Docquier and Rapoport (2005)) to support family left in the country.

2. Econometric Method

We use unbalanced panel because of insufficient data on certain periods. The objective is to estimate the impact of remittances on growth in Sub-Saharan Africa from 1980 to 2004. A 3-year moving average periods was applied for all variables.

Following the empirical literature on the new growth theory (or endogenous growth), the equation to estimate is:

$$Growth_{it} = \beta_0 + \beta_1 GDPpc_{in} + \beta_2 REMIT_{it} + \beta_3 X_{it} + \alpha_i + \varepsilon_{it}$$

where $Growth_{it}$ is the average growth rate of real GDP per capita in the country i to the date t covering 3 years and expressed as annual rate, $GDPpc_{in}$ is real GDP per capita at the first period; $REMIT_{it}$ is the amount of money sent by migrants to their countries of origin, and X_{it} is the vector of other control variables including investment, financial development, education, official development aid, institutions, population growth, degree of openness, inflation and government expenditure; α_i is the unobserved country-specific effect or country-fixed effects and ε_{it} is the error term.

Using White's method correction solves the problem of heteroscedasticity. Moreover, there is a possible correlation between remittances and some of the other control variables such as investment and education; leading to a risk of colinearity bias for the estimation results. Indeed, investment and education may be the main channels through which remittances affect growth.

This problem was also highlighted by Faini (2002), Docquier and Rapoport (2005) who argued that Chami et al. (2003)'s negative results on the impact of remittances on growth in developing countries are due to the introduction of investment as control variable. This problem has not been taken into account in studies conducted by Mundaca (2005); Catrinescu et al. (2008), Pradhan et al. (2008), Bettin and Zazzaro (2008), leaving some doubts to their results. Remittances could also affect growth through access to education (Hanson and Woodruff (2003), Cox-Edwards and Ureta

(2003), McKenzie and Rapoport (2006)). Including such variables as control variables with remittances could prevent us to correctly isolate the impact of each variable on growth and then underestimate the impact of remittances on growth. For this reason, these variables will not be included in the final estimation.

F-test allows us to reject the null hypothesis of individual homogeneity at 1% level and conclude to the presence of individual specificities. The good model to use here is either fixed-effect or random-effect. We check if these specificities are fixed or random by performing the Hausman test. The results allow us to choose the fixed effects model at 1% level. The introduction of country specific effects in the model will allow taking into account a possible heterogeneity of data and unobservable characteristics of countries.

The past literature (Chami et al. (2003), Catrinescu et al. (2008) and Faini (2007) mentioned the possibility of causality between remittances and growth. The idea is that both remittances could affect growth of recipient countries, growth in these countries may also influence the amount of remittances received. Some remittances are often sent to support poor families; high growth in these countries will result in higher income and thus reduce remittances received. The existence of such causality would result in a correlation between the control variables and error term, which violates the assumptions of a linear regression model. It is in this case difficult to assess the effect of remittances and to isolate its influence on growth. Estimation of such a model would lead to endogeneity bias. To address this problem, we use the Two-Stage Least Squares (TSLS) instrumental variables method and try to find variables highly correlated with the endogenous variable, but independent of the error term. The problem with this method is to find good instruments. The literature has emphasized the difficulty of finding appropriate instruments for remittances that is not subject to reverse causality and the weakness of instruments used by some authors. Chami et al. (2003) use differences in income and interest rates between migrants' home and host countries where host countries are represented by the proxy USA; while Faini (2007) uses the distance between migrants' home and host countries. However, these instruments suffer from the drawback that they don't fully reflect the flows of remittances. For instance, distance between home and host countries do not vary over time, so it is not possible to use it in

a panel framework. For this reasons, lagged values of the endogenous variables often act as instruments. In the econometric theory, a good instrument (exogenous) variable may be endogenous variable itself lagged 2 periods. However, as data are calculated on 3-year moving average periods, it is not possible to use such instrument because of the overlapping periods. Therefore, remittances variable is lagged 3 periods as well as ODA that was seen by literature as potentially endogenous to growth. All other control variables are lagged one period.

3. Estimation Results and Analysis

The results of the estimation are presented in Table 5. The coefficient of initial per capita income is negative and significant, meaning that the lower the per capita income, the higher the growth rate. This suggests that convergence of per capita income occurred during our sample period in SSA.

The coefficient of openness is not statistically significant. The economic openness did not influence growth in SSA. This finding goes against most of the economic literature results recognizing that openness to international trade and foreign capital promotes economic growth (Sachs and Warner (1995), Harrison (1996), Frankel and Romer (1999)). This result could be explained by the fact that poor countries would not have all the prerequisites to withstand international competition with multinationals companies from rich countries and gain from openness.

The institutional variable has a significant coefficient of 5% level meaning that institutions positively affect growth in SSA.

Foreign Aid has not affected growth in SSA. This paradox of inefficient aid has been explained by Burnside and Dollar (2000), Easterly et al. (2003), Levine (2003), Clemens et al. (2004).

Government spending and inflation seem to have no effects on growth; their respective coefficients are not significant. The population growth negatively affects growth. Indeed, when population growth is high, capital accumulation is insufficient to cover the required investment (Azariadis (1996), Becker et al. (1990)).

Regarding remittances, our main variable of interest; the coefficient is not statistically significant. There is no direct relationship between remittances and economic growth in Sub-Saharan Africa. This is in line with the results of the earlier literature on migration and development. However, we think that even if there is no direct impact, it is possible to have an indirect positive impact of remittances on growth through several channels, such as saving or investment, education and financial development, which have been found to have positive impact on growth by the economic literature. It is possible that remittances have direct positive impact on saving, investment, education, financial development, and that these variables have direct positive impact on growth. For example, our results in Table 5 show a direct positive relation between financial development and growth.

Conclusion

In this paper, we investigated the relationship between remittances and growth in SSA. From a sample of 29 SSA countries for the 1980-2004, we found that remittances do not have any direct impact on economic growth of Sub-Saharan African countries. However, it is possible that remittances promote growth through indirect channels such as saving, investment, financial development, education.... A share of remittances would be directed towards productive activities that foster growth in SSA. In the absence of highly developed financial system in this region, remittances could play a role of substitute or complement to the existing financial system and help alleviate credit and liquidity constraints for investment. Even apart from the fact that they can be directly invested, remittances can contribute to financial development by allowing households to open bank accounts and then access to the banking system. Remittances are also a valuable resource that provides access to education for children who otherwise would have left school for lack of means. Even if remittances are used for consumption, this may lead to multiplier effects through increased demand and increased production that is good for growth. Households spending may be in the form of healthcare, or health is a key factor in individual productivity. Remittances can thus promote economic growth in Sub-Saharan Africa through several indirect channels. In addition, our results show that foreign aid has no impact on growth in Sub-Saharan Africa.

Institutions are also important in promoting growth in SSA. Remittances may be more easily directed into investments for countries with a sound institutional environment. Such institutional environment also encourages and incites migrants to return back home with investment projects.

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APPENDIX 1: Definition of remittances according to the IMF.

More formally the "Balance of Payment Statistics, IMF offers a much more formal in order to facilitate registration and recording of remittances in the balance of payments. According to this definition, Remittances are defined as the sum of three items in the IMF's *Balance of Payment Statistics Yearbook* (BOPSY): "Workers' Remittances", "Compensation of Employees" and "Migrant Transfers".

- ***Workers' Remittances*** (part of current transfer in the current account) are current transfers made by migrants who are employed and resident in another economy. This typically includes those workers who move to an economy and stay, or are expected to stay, a year or longer.
- ***Compensation of Employees*** (part of the income component of the current account) instead comprises wages, salaries and other benefits (cash or in kind) earned by non-resident workers for work performed for residents of other countries. Such workers typically include border and seasonal workers, together with some other categories, e.g., local embassy staff.
- ***Migrant Transfer*** (part of the capital account) include financial items that arise from the migration (change of residence) of individuals from one economy to another (stay less than a year).

Table 1: Place of SSA in Remittances received by region, billion US \$ and %, 2003-2008

		2003	2004	2005	2006	2007	2008	Increase between 2003 and 2008
East Asia and Pacific		33	40	50	58	71	86	163%
Latin America and Caribes		37	43	50	59	63	65	77%
Middle East and North Africa		20	23	25	26	31	35	70%
South Asia		30	29	34	43	54	73	141%
SSA	Billion \$	6	8	9	13	19	21	254%
	% of remittances to all developing countries	4.3%	4.9%	4.7%	5.4%	6.4%	6.3%	
All developing countries		140	164	199	235	289	338	

Source: Data from World Bank staff estimates based on the IMF's BOP statistics Yearbook 2009

Table 2 : Variables definition and source of data

Variables	Definition	Source
GDPPC	GDP per capita, \$ constant	World Development Indicators (2006), World Bank
REMIT	Workers remittances, % of GDP	
POP	% of population under 15	
OPEN	Openness as Exports+Imports on GDP	
M2	M2, % of GDP	
INV	Gross fixed capital formation, % of GDP	
INF	Inflation rate as a variation of consumption price index	
GOV	Government consumption, % of GDP	

POLIT	Political rights index, with 0 as worst political environment and 6 the best political environment	www.freedomhouse.com
ODA	Foreign Aid (Official Development Assistance), % of GDP	David Roodman, "An Index of Donor Performance," Working Paper 67, Center for Global Development, August 2005, 2008 updated
EDU	Gross secondary enrollment in %	World Bank education database (EdStats)

Table 3: Summary of statistics

	Mean	Median	Maximum	Minimum	Std.-Dev.
GROWTH	0.72	0.92	11.49	-9.10	3.111261
GDPPC					
initial	654	323	4266	74	803.0493
REMIT	2.83	1.23	28.15	0.00	4.186338
ODA	18.57	15.05	94.64	0.00	14.97541
POLIT	2.48	2.00	6.00	0.00	1.845258
INF	11.21	7.78	87.22	-1.97	12.40566
POP	44.81	45.31	50.40	25.42	3.728905
OPEN	68.77	58.92	185.11	9.31	35.53310
GOV	14.08	12.89	33.95	5.71	5.899087
M2	26.54	23.40	80.76	8.14	12.66012

Table 4 : Correlations

	GROWTH	GDPPC initial	REMIT	ODA	POLIT	INF	POP	OPEN	GOV	M2
GROWTH	1	0.12	0.16	-0.03	0.22	-0.11	-0.17	0.24	0.08	0.14
GDPPC initial	0.12	1	-0.05	-0.36	0.25	-0.18	-0.56	0.43	0.38	0.52
REMIT	0.16	-0.05	1	0.05	0.19	-0.10	-0.01	0.31	0.18	0.25
ODA	-0.03	-0.36	0.05	1	-0.08	0.03	0.21	-0.14	0.03	-0.09
POLIT	0.22	0.25	0.19	-0.08	1	-0.09	-0.35	0.20	0.17	0.46
INF	-0.11	-0.18	-0.10	0.03	-0.09	1	0.05	-0.12	0.04	-0.23
POP	-0.17	-0.56	-0.01	0.21	-0.35	0.05	1	-0.26	-0.01	-0.53
OPEN	0.24	0.43	0.31	-0.14	0.20	-0.12	-0.26	1	0.48	0.36
GOV	0.08	0.38	0.18	0.03	0.17	0.04	-0.01	0.48	1	0.33
M2	0.14	0.52	0.25	-0.09	0.46	-0.23	-0.53	0.36	0.33	1

Table 5: Remittances and Growth in Sub-Saharan Africa

Dependant Variable : GDP per capita Growth	
Initial GDPpc	-0.0059*** (-2.771)
Migrants' remittances (REMIT)	-0.058 (-0.582)
Foreign aid (ODA)	0.002 (0.034)
Political rights index (POLIT)	0.266** (2.048)
Population under 15 (POP)	-0.312* (-1.694)
Openness (OPEN)	-0.001 (-0.111)
Inflation (INF)	-0.027 (-0.829)
Financial Dev. (M2)	0.077** (2.00)
Gov. Consumption (GOV)	-0.069 (-0.389)
Constant	17.26* (1.76)
Observations	363
Number of id	29
R-squared	0.42
Adjusted R-squared	0.36
F-statistic	7.24***

t-statistics in parentheses, *** significant at 1%, ** significant at 5% and * significant at 10%.

Figure 1

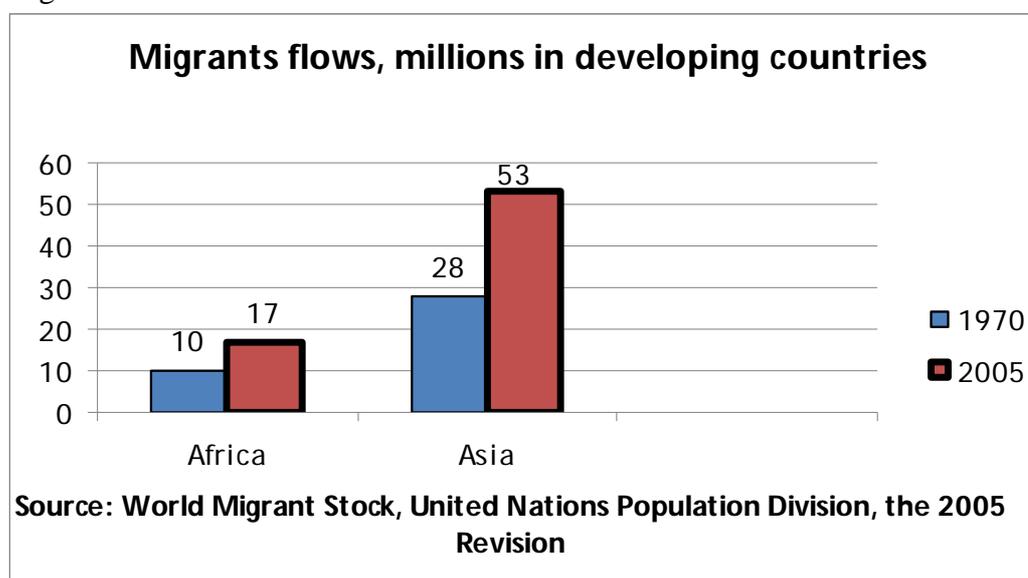


Figure 2

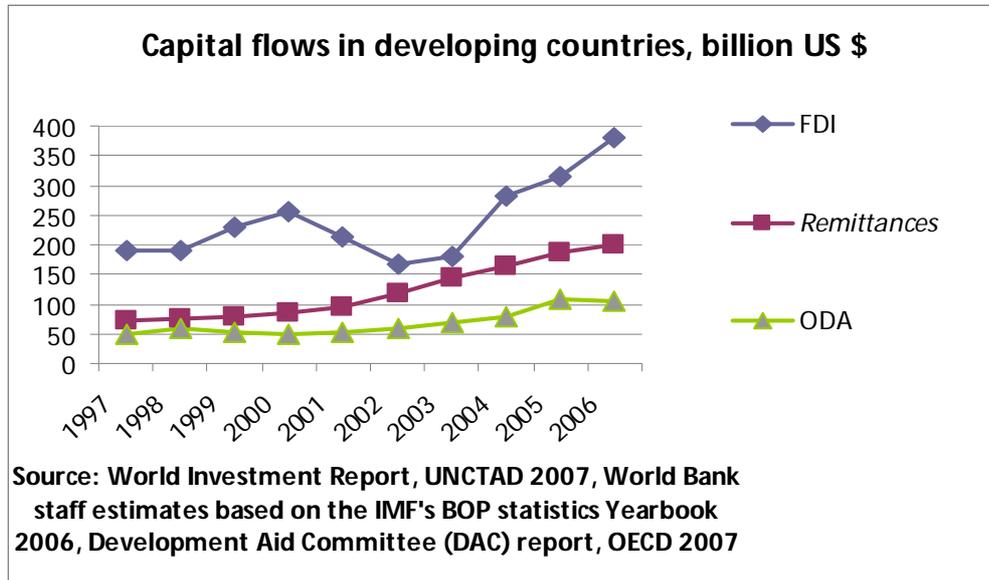


Figure 3

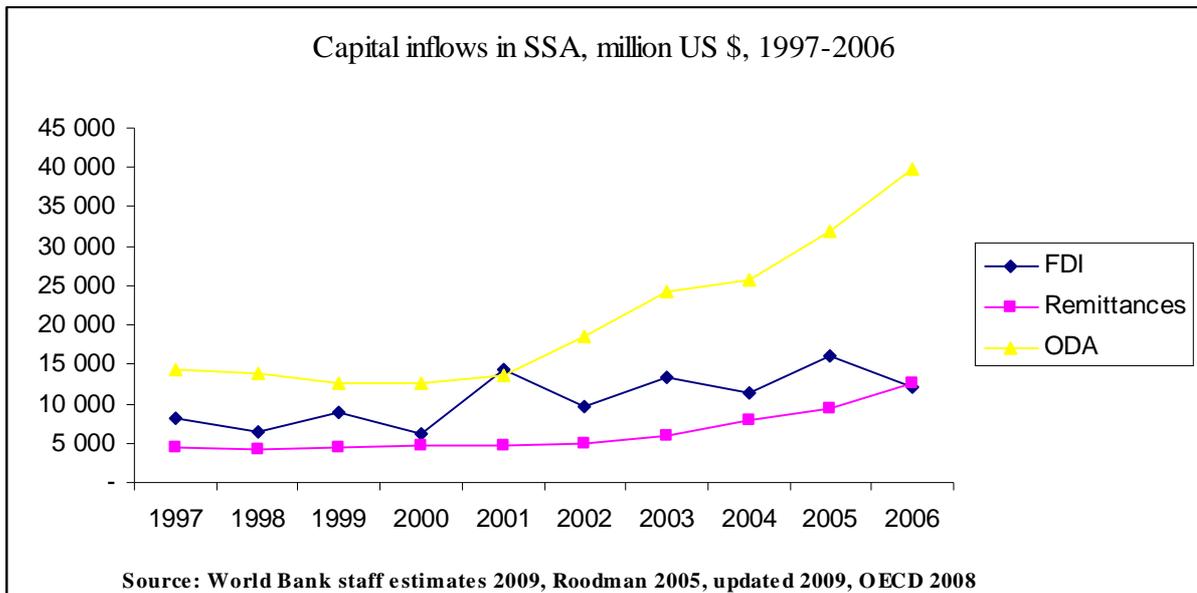


Figure 4

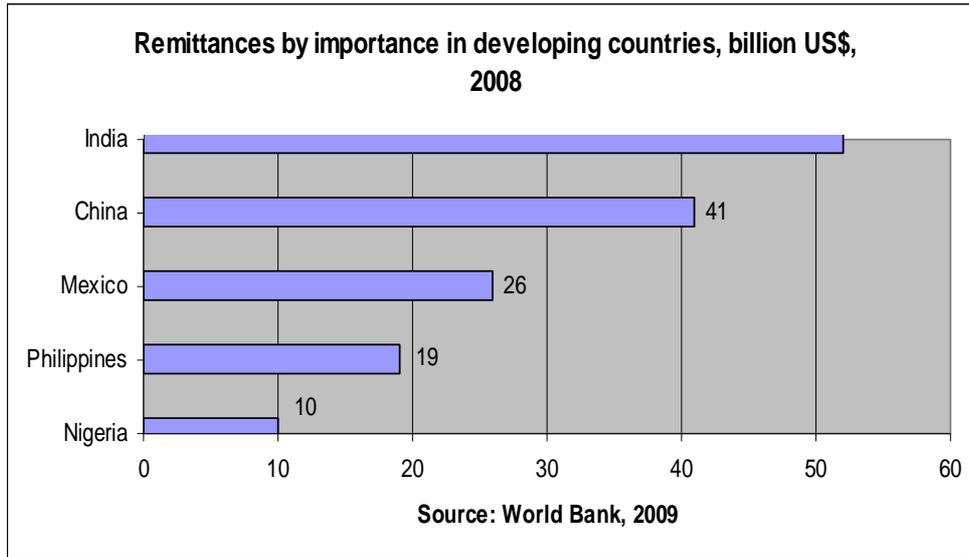


Figure 5

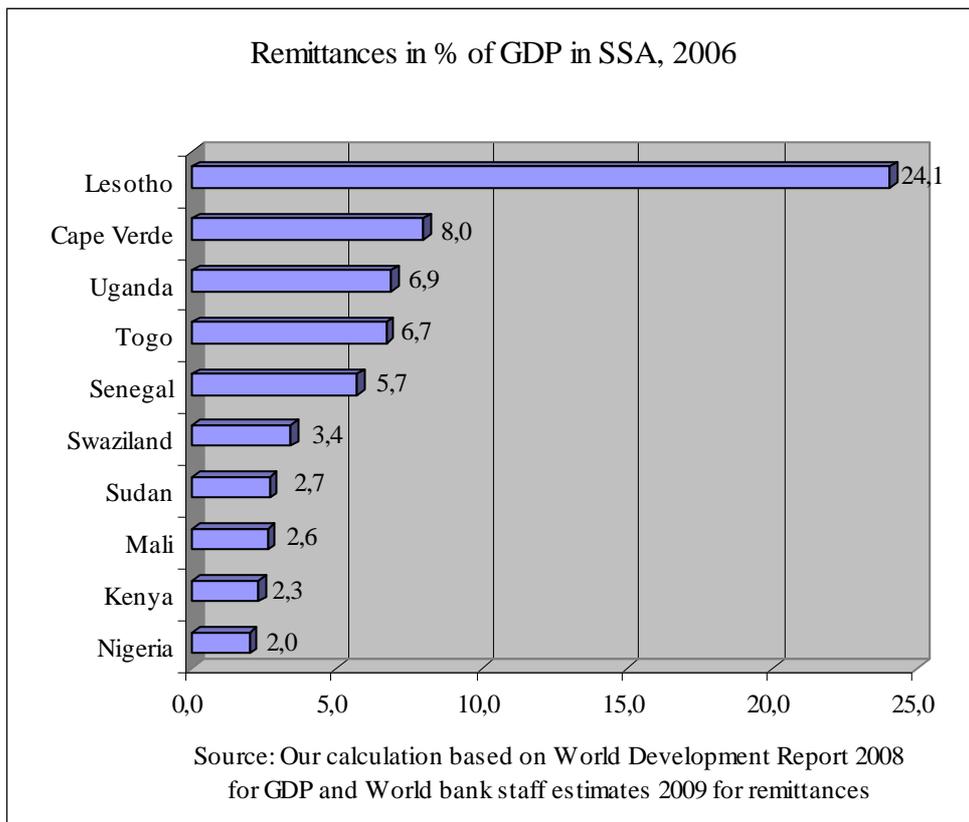


Figure 6

