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Full Length Research Paper

Comparative Study of the different external sources of financing for development 'combinations: Empirical Validation

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Face to the difficulty of achieving the Millennium Development Goals (MDGs) due to lack of sufficient funding and the dramatic drop of the Official development assistance (ODA), one wonders about how to overcome this decline through the exploitation of other international financing resources for development. One of the ways is, for example, the use of financial transfers from emigrants (remittances) and foreign direct investment (FDI). Building on this new basis of international development finance and given the trend decline in ODA, we seek in this work to test the mixing effectiveness of the external financing resources on economic growth in developing countries.

Keywords: Economic growth, official development assistance; remittances, foreign direct investment, developing countries.

INTRODUCTION

The challenging environment has revived the debate about the effectiveness of ODA by the publication of a World Bank's report: "Assessing Aid" based on the work of Burnside and Dollar (1997-2000).This work supports the thesis suggesting that the effectiveness of ODA's impact on economic growth depends on economic policies quality of the ODA's receiving developing countries.

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Thus, this work paves the way for selectivity criteria 25 that should be applied to these countries.

However, despite this conditionality attached to ODA flows by the criteria of selectivity, ODA's efficiency is not always achieved. Indeed, its impact remains limited both in terms of growth and in terms of reducing poverty.

This thesis has been adopted by the International Financial Institutions (IFIs) which encourages the financing of the MDGs through the use of the remittances, and which announces that remittances have grown faster than FDI. Therefore, they argue for the assumption that: if the remittances that are sent to migrants' families living in the developing countries are effectively and productively

used by these countries, they could be an effective factor in reducing poverty and stimulating economic growth.

However, all the studies on the external capital' effectiveness have been criticized because of their limitation to testing the impact of one extern financial resource on promoting economic growth and development in the receptor country while they ignored the potential role of the other sources. Moreover, comparative studies on the effectiveness of the three financial development resources are poorly theorized. Most notably, despite the growing importance of remittances in total international capital flows, the relationship between remittances and economic growth has not been sufficiently tested. Following this finding, the aim of our research is to determine what would be among these three external resources of financing development; the most effective and / or what would be the combination of these sources, which would be the most optimal to support economic growth and development in developing countries.

To have this done, we construct a new model that multiplies the resources of international capital flows to identify the effect of their mixing on stimulating economic growth and to show those remittances both through formal channels and informal channels; which could be a significant source of development of finance of developing countries.

The outline of this paper is as follows: in section 1 we present the econometric estimation and the methodology. In section 2 we will test the impact of the mix of the external capital sources on economic growth. We will use a sample composed by 71 developing countries over a period of thirty years, from 1981 to 2000. The third section shows the comparison results of the different combinations of external capital sources.

Sample Data source and Econometric Estimation: Methodology

Econometric Estimation

Our estimation is done on a sample composed of 71 developing countries (DC) receiving official development assistance and drawn from the list of the Development Assistance Committee of the OECD.

The sample's construction respects the classification of these countries, which is made by CAD according to the level of Gross National Income per capita.

According to this classification, developing countries are grouped into four different classes: "Least Developed Countries", "low income countries", "countries and territories to lower middle income bracket" and "countries and territories upper middle income ".

All of these developing countries have in common, the benefit of development aid and the importance of entering transfers received from emigrants as percentage of their GDP. These inputs of remittances vary between 2% and 30% as a percentage of GDP.We considered the entire period from 1981 to 2010.

Sample and Data Sources

Our data are based on the World Bank's reports (WDI and "World Development Indicators 2010", and GDF "Global development finance 2010")

Endogenous variables

- G: Annual percentage growth rate of GDP per capita based on constant local currency.

Exogenous variables

- ODA: Net Official Development Assistance (ODA) per capita consists of disbursements of loans made on confessional terms (net of repayments of principal) and grants by official agencies of the members of the Development Assistance Committee (DAC)
- WR: Workers' remittances and compensation of employees comprise current transfers by migrant workers, and wages and salaries earned by non-resident workers.
- FDI: Foreign Direct Investment is the sum up of net inflows of investment that are to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor.
- INFL: Inflation as measured by the annual growth rate of the GDP implicit deflator
- M2: M2/PIB Money and quasi money comprise the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government.

The models Assumptions

- The most significant model economic growth is based on a mix between external financial sources for development, and not based solely on remittances (Rem) , either on the official development assistance (ODA) or foreign direct investment (fdi)
- Despite the remarkable ODA flows 'decline over the past three decades and the legitimacy' crisis of ODA in the 1990s, its role in promoting economic growth is important for most developing countries.
- The impact exerted by each external financial source of development differs from a group of developing countries to another

Table 1. Countries of group m1 estimatimation results

Exogenous variables	(1) Rem+Oda	(2) Rem+fdi	(3) oda+fdi
Constant	-0.609	0.98*	1.54***
	(-0.808)	(1.84)***	(4.64)***
Log $(PIB)_{t-1}$	0.657***	0.843***	0.769***
	(18.51)***	(25.04)	(24.40)
Rem_{t-1}	0.369***	0.053*	
	(7.14)***	(1.71)	
Oda_{t-1}	0.190***		0.053*
	(4.78)		(1.79)
Fdi_{t-1}		0.003	0.058
		(0.082)	(1.59)
Inf_{t-1}	-0.194	-0.094	-0.060
	(-0.930)	(-1.13)	(0.78)
$M2_{t-1}$	0.151	0.061	0.043*
	(1.42)	(0.66)	(2.38)
Obs	772	857	826
N	31	31	31
R^2 Overall	0.694	0.792	0.789

Table 2. Countries of Group m3 estimation results

Exogenous variables	(1) Rem+oda	(2) Rem+fdi	(3) Oda+fdi
Constant	-0725	0.729***	2.464
	(-0.45)**	(8.81)	(1.57)***
Log $(PIB)_{t-1}$	0.812***	0.113*	0.923***
	(10.19)	(1.84)***	(7.67)
Rem_{t-1}	0.149**	0.773***	
	(2.14)	(2.65)	
Oda_{t-1}	0.001		0.179*
	(0.006)		(1..95)
Fdi_{t-1}		0.057	0.027
		(0.37)	(0.186)
Inf_{t-1}	-0.074	-0.003	-0.069
	(0.22)	(-0.05)	(-0.13)
$M2_{t-1}$	0.128	0.068	0.402
	(1.28)	(0.774)	(0.61)
Obs	646	646	646
N	21	21	21
R^2 Overall	0.821	0.742	0.738

- The combinations' impact of the three external financial development sources varies across groups of developing countries.

METHODOLOGY

Our model is based on panel data which has the advantage of addressing the joint common and specific effects.
However, models based on panel data raise the problem of the correct specification of the effect that is either common or specific. It is first necessary to distinguish the specific effects and the common effects.

Under this section, we will empirically verify and specify the most efficient combination of external financial sources in order to promote economic growth. Further in this work, we will try to make a comparative study of the effectiveness of these external sources of development.

To do this, our study will be developed as follows: we will firstly do the estimate of the following three combinations:

- Combination 1: mixing between ODA and remittances from emigrants
- Combination 2: mixing between official development assistance and foreign direct investment
- Combination 3: mixing between remittances and foreign direct investment

Secondly, on the basis of the results obtained from our estimation; we will conduct a comparative study of the of

Table 3. Recapitulative table of results for the different combinations (case of countries m1)

N°	combination	R^2
1	$Pib_{it} - Pib_{i,t-1} = \alpha_i + + \alpha_1 Oda_{it-1} + \alpha_2 Rem_{it-1} + \alpha_4 m2_{it-1} + \alpha_5 Inf_{it-1} + U_{it}$	0.694
2	$Pib_{it} - Pib_{i,t-1} = \gamma_i + + \gamma_1 Rem_{it-1} + \gamma_2 Fdi_{it-1} + \gamma_3 m2_{it-1} + \gamma_4 Inf_{it-1} + U_{it}$	0.792
3	$Pib_{it} - Pib_{i,t-1} = \gamma_i + + \gamma_1 Rem_{it-1} + \gamma_2 Fdi_{it-1} + \gamma_3 m2_{it-1} + \gamma_4 Inf_{it-1} + U_{it}$	0.789

Table 4. Recapitulative table of results for the different combinations (case of countries m3)

N°	Combination	R^2
1	$Pib_{it} - Pib_{i,t-1} = \alpha_i + + \alpha_1 Oda_{it-1} + \alpha_2 Rem_{it-1} + \alpha_4 m2_{it-1} + \alpha_5 Inf_{it-1} + U_{it}$	0.821
2	$Pib_{it} - Pib_{i,t-1} = \gamma_i + + \gamma_1 Rem_{it-1} + \gamma_2 Fdi_{it-1} + \gamma_3 m2_{it-1} + \gamma_4 Inf_{it-1} + U_{it}$	0.742
3	$Pib_{it} - Pib_{i,t-1} = \gamma_i + + \gamma_1 Rem_{it-1} + \gamma_2 Fdi_{it-1} + \gamma_3 m2_{it-1} + \gamma_4 Inf_{it-1} + U_{it}$	0.738

Table 5. Estimation results for group 4

Exogenous variables	**(1)** **Rem+oda**	**(2)** **Rem+fdi**	**(3)** **Oda+fdi**
Constante	-2.38** (-1.96)	2.37*** (4.55)	2.316*** (3.30)
Log (PIB)$_{t-1}$	0.576*** (9.64)	0.796*** (16.12)	0.810*** (14.60)
Rem $_{t-1}$	0.412*** (3.25)	0.068** (2.07)	
Oda $_{t-1}$	0.013 (0.05)		0.016 (0.18)
Fdi $_{t-1}$		0.028 (0.64)	0.050* (1.73)
Inf $_{t-1}$	-0.153* (1.65)	-0.009 (-0.08)	-0.020 (-0.17)
M2 $_{t-1}$	0.222*** (0.65)	0.035 (0.054)	0.061* (1.92)
Obs	351	351	351
N	13	13	13
R^2 Overall	0.73	0.827	0.82

the different combinations' effectiveness for every group of country apart. Among other things, we will try to identify what is, among these three combinations, which will be the most effective in promoting economic growth for each group of countries.

Our objective is to compare our results with the theoretical and empirical results in the literature on the impact of external sources of finance on economic growth. In addition we aim to identify and measure the mixing effect of these external financial sources in promoting economic growth.

Indeed, many theoretical models have focused on the nature of the relationship between growth and each external source of development finance. The model that we will adopt, considers growth as a function of GDP per capita delayed by a year, remittances, official development assistance, the foreign direct investment, as a percentage of GDP respectively. And as conventional variable of economic growth, we introduced the variable (inf) measured by the annual growth rate of inflation and (M2) measured by financial depth which in turn is measured by the growth rate yearly in money and quasi money.

Since these conventional variables of economic growth as well as financial external sources for development are both predetermined and / or endogenous, depending on the current study period, we opt for the technique of dynamic panel. So, we will achieve our estimate using the variables' coefficients of the generalized method of moments (GMM) in order to assess the common effects of remittances and the explanatory variables on economic growth in developing countries in our sample.

Our endogenous variable is the GDP per capita annual growth rate. The central growth model that we will adopt

is summarized in the following equation:

$$y_{it} = \Delta x_{1i,t} = \alpha_i + \alpha_1 x_{1i,t-1} + \alpha_2 x_{2i,t-1} + \alpha_3 x_{3i,t-1} + \alpha_4 x_{4i,t-1} + \alpha_5 x_{5i,t-1} + \alpha_6 x_{6i,t-1} + U_{it}$$

- Where "i" represents each country and "t" represents each with period (t = 1, 2, ..., T) and the individual effect αi. y_{it} is the dependent variable in this regression. It represents the average annual growth rate of GDP per capita for country i in period t.

- $x_{1i,t-1}$ is the GDP per capita for country i in period t-1. It is calculated in $ (in constant prices U.S.)

The impact of the initial level GDP per capita on economic growth has been controversial. On the one hand, Blomstrom (1996) and Casseli et al. (1996) found a positive relationship between growth rate and initial GDP per capita growth rate through its positive impact on capital formation. However, according to Arjona and Pearson (2002, p.23), this negative effect of initial income on the annual growth rate is explained by Solow and Swan (1965) as a relative convergence in economies, which means that there is a same capital level per capita for all countries.

$x_{2i,t-1}$ is the official development assistance as a percentage of GDP delayed by a period. The log of ODA is used to capture the impact of an external source of the official capital on economic growth. According to the proponents of ODA; Chenery and Strout, 1966; Papenek 1973, Levy, 1987 and Islam, 1992; Fayissa and El-Kaissy, 1999, the inflow is necessary for economic growth in developing countries. The ODA is a stimulator of economic growth for developing countries.

Durbarry Ramesh, Norman Gemmell and David Greenaway (2002), in their study, sought to contribute to the empirical debate on the ODA ability in stimulating economic growth to developing countries. They used the growth model of Fischer-Easterly in which they introduced the variable with delayed and macroeconomic policy variables such as financial depth. And they have shown that the ODA is likely to affect the rate of economic growth in the long term. According to their results, ODA has a positive and statistically significant impact on economic growth at the 10% level.

However, ODA opponents argue that this official capital has a negative effect on domestic savings and economic growth in less developed countries. Among the opponents was particularly Boone (1996) who questioned the ODA increases' effects, arguing that, for a sample of least developed countries, ODA has an impact neither on investment nor on growth of income.

The Results of Bichaka Fayissa, Christian Nsiah and Black Hills (2008) join the opinion of Boone (1994). Indeed, by combining ODA with the other two sources of external capital for development, they have shown that ODA has a negative impact. However, their results aren't significant. According to their estimate, using the generalized method of moments (GMM), Remittances has a positive and statistically significant impact on GDP per capita growth in African countries at the 10% level. They have shown that a 10% increase in remittances leads to an increase in average 0.4% of GDP per capita.

According to Adams and Page (2003), Aggwal et al (2006) Guilano and Ruiz (2005) and other economists, remittances have a positive impact on economic growth. Similarly, Rao, B. Bhaskara and Hassan, and Gazi (2009) also used the GMM in their studies. Their results reveal that the remittances-GDP ratio, lagged one period, have a positive impact on the growth of GDP per capita but it is small. However, in January Raju Singh, Markus Haacker, and Kyung-woo Lee (2009) contradicts this work and joined the opinion of Chami et al (2009). While using GMM, the latter have shown through their models that as the impact exerted by remittances, it is negative regardless to the sample.

Concerning these economists, one of the results of their analysis is robust to their specifications of the negative coefficient of remittances in growth regressions, consistent with the presence of some Dutch disease effects. According to the results of Chami et al., they echo the recent criticism of foreign assistance presented by Rajan and Subramanian (2005) and others, who point out that there is little evidence that the official capital contributed significantly to growth in developing economies. Besides, their results suggest that remittances have contributed little to economic growth in the economies receiving remittances and can be even stunted in some. Therefore, we cannot predict the effect exerted by this variable.

$x_{4i,t-1}$: Represents foreign direct investment as a percentage of GDP, as the estimate carried on development ODA and remittances, the impact of foreign direct investment has varied from one study to another.

$x_{5i,t-1}$ is the inflation rate

$x_{6i,t-1}$ M2 represents money and quasi-money to GDP. This variable reflects the financial depth. It is one of the oldest measures used to measure the degree of financial development.

METHODOLOGY

Our model is composed of three equations; we will do our estimation equation by equation.

$Pib_{it} - Pib_{i,t-1} = \alpha_i + + \alpha_1 Oda_{it-1} + \alpha_2 Rem_{it-1} + \alpha_4 m2_{it-1} + \alpha_5 Inf_{it-1} + U_{it}$ (1)

$Pib_{it} - Pib_{i,t-1} = \beta_i + + \beta_1 Oda_{it-1} + \beta_2 Fdi_{it-1} + \beta_3 m2_{it-1} + \beta_4 Inf_{it-1} + U_{it}$ (2)

$Pib_{it} - Pib_{i,t-1} = \gamma_i + + \gamma_1 Rem_{it-1} + \gamma_2 Fdi_{it-1} + \gamma_3 m2_{it-1} + \gamma_4 Inf_{it-1} + U_{it}$ (3)

Note that each equation contains four exogenous variables delayed and lagged endogenous variable (the

Table 6. Synthetic table of variables

Variable		Description
Exogenous variables	**ODA**	Offcial Developement assitance in percentage of PIB
	WR	Migrants transfers, treatments and nonresident workers salaries in percentage of PIB
	FDI	net incomes of direct foreign investments in percentage of PIB
Endogenous Variables		
	Gdp	Pib per capita by constant price
	infl	Annual inflation rate
	M2	Financial depth

GDP per capita). To facilitate discussion, these equations can be written in a dynamic form as follows:

$$y_{it} = \alpha_i + \gamma y_{i,t-1} + x_{it-1}\beta + u_{it}$$

Where y_{it} is the endogenous variable (Pib_{it}) and x_{it} the matrix of explanatory variables (which Oda, Rem, fdi, m2 and Inf). The introduction of the lagged dependent variable with country fixed effects makes the estimation of intra individual ordinary least squares (OLS) biased and not convergent given first, the lagged dependent variable is correlated with the term error ($E(y_{i,t-1}U_{it}) \neq 0$) even in the absence of autocorrelation Uit. Second, the explanatory variables are correlated with the individual effects E (xit-1 αi) ≠ 0 and are weakly exogenous.

Arellano and Bond (1991) suggest an estimating technique "the generalized moment's method (GMM) that not only corrects the bias introduced by the lagged endogenous variable, but also allows the correction of the measurement error in the other regresses. The method principle is to consider the model in first differences:

$$\Delta y_{it} = \gamma(\Delta y_{i,t-1}) + (\Delta x_{it-1})\beta + \Delta u_{it}$$

The GMM method allows us to take for each period the first difference of the equation to eliminate the country-specific effects (αi), and then instrument the first difference of the variables in the equation on their values delayed level from 2… to n periods.

For the period n°3, $\Delta y_{i3} = y_{i3} - y_{i2} = \gamma(y_{i2} - y_{i1}) + ... + u_{i3} - u_{i2}$

y_{i1} is a valid instrument $\Delta y_{i2} = y_{i2} - y_{i1}$ for uncorrelated with $u_{i3} - u_{i2}$

For t=4, $\Delta y_{i4} = \gamma(\Delta y_{i3}) + \beta(\Delta x_{i3}) + \Delta u_{i4}$ y_{i1} the variable is also a valid instrument since, given the nature of the autoregressive model, it is correlated with (y_{i3} - y_{i2}) but not with (UI4 - UI3). It, therefore, has two instruments (yi1, yi2) for the estimation of the model at time t = 4

RESULTS AND DISCUSSION

The estimation results are shown in the following tables:

Estimation of the first and third group results analysis

These results are given respectively in Table No. 1 and No. 2 below:

- List of Least Developed Countries: m1 group: Bangladesh, Benin, Cambodia, Comoros, Djibouti, Eritrea, Ethiopia, Gambia, Guinea, Guinea-Bissau ,Haiti, Kiribati, Lesotho, Liberia, Mali, Mozambique, Nepal, Niger, Uganda, Rwanda, Samoa, Senegal, Sierra Leone, Sao Tome and Principe, Sudan and Yemen.
- List of low-income countries (m3 group): Cape Verde, Egypt, El Salvador, Fiji, Guatemala, Honduras, India, Indonesia, Morocco, Moldova, Mongolia, Nigeria, Nicaragua, Pakistan, Philippines, Syria, Swaziland, Tonga, Vietnam¬
- m1and m3 groups, respectively composed of 31 least developed countries and 21 developing countries and territories to lower middle-income bracket, the three combinations converge towards the same following results. Beginning with the m1 group for model No. 1, in which we mixed remittances with official development assistance, the results in Table 1 showed that the ODA variable with a delay of a period has a positive and statistically significant impact at 1%. Thus, a 1% increase in shipments will increase to 0.369% in GDP per capita of countries receiving remittances, which are according to the classification of Development Assistance Committee, low-income countries.

This is the same for the group m3. Indeed, the first column of Table 34 summarizes the results of Equation 1; in which we mixed remittances with the ODA flows. For the first period ODA coefficient is positive and statistically significant at the 5% level. Thus, an ODA increase of 5%

generates a raise of GDP per capita by about 0.149% for countries receiving remittances according to the classification of Development Assistance Committee (check the meaning). These results confirm those of Ramesh Durbarry, Norman Gemmell and David Greenaway (2002), which attempted to measure empirically the impact of development assistance on economic growth. Their sample is composed of about 70 countries. And they have shown that ODA has a positive impact on economic growth in developing countries referred to in their sample.

This impact has a large coefficient in the two regions in their sample of developing countries as a whole. This coefficient is significant at the 10% level in Latin America and slightly more than 10% in sub-Saharan Africa. These authors have also tried to focus on the non-linear ODA effect. They confirmed this effect of aid for Latin America (with the quadratic term significant negative 5%), but not for sub-Saharan Africa.

They interpreted this by the fact that sub-Saharan Africa with its generally low levels, development and public capital stock can reap greater benefits in Latin America, from contributions of additional ODA.

Turning now to the third model, which was combined with the OAD and foreign direct investment (fdi), the results of the third column of Table 2; have revealed that the weight assigned to this variable witch always keeps a positive sign and statistically significant at the 10% , equal to 0053. A 10% increase in aid will result in a 0.053% increase in GDP per capita for the least developed countries. The same is true for the group of developing countries (m3 group) where the ODA coefficient is positive and it is statistically significant. It is equal to 0.179. So if ODA inflows to countries and territories of middle income bracket increased by 10%, GDP per capita in these countries suffer increased 0.179%.

Especially if we look at the general explanatory power of these two models, we note that the R-squared of the first and the third model is slightly above those of the second model where we mixed remittances with the Official development assistance. Both results of the first group and the third group are to be presented in the two tables below.

As shown, in the case of the first two groups of developing countries are. in our sample the two models which are respectively the model (1) and (3) where we have introduced the variable with the largest explanatory power than the second model. For the impact exerted by remittances, we note that for the group of least developed countries it is positive and statistically significant at 10% for the second model. It is equal to 0.053. So, an increase in shipments of 10% will cause GDP per capita to increase by 0.053. It is also positive for the other two models; however, it is no longer significant.

For the developing countries case in Group No. 3, representing the countries and territories to lower middle income bracket; remittances are, as in the first group, positive and statistically significant only for the second model. They keep a positive sign but they aren't significant for the other two models. For the foreign direct investment effect on economic growth in developing countries akin to these two groups, we see that it is, in the case of positive LDCs but it is significant only for the third model where we combined it with the variable fdi help. Notwithstanding, it is positive for the middle-income group of countries and territories but not significant for lower bracket whatever the model is. If one wants to opt for a ranking of the effectiveness of three external sources of financing for development we introduced in our model, one can deduce from the above that the variable is using the most efficient variable to promote economic growth for these two groups of developing countries.

The variable is classified in second position after the official assistance. And fdi is in the third position. If we consider that the based different combinations made between external capital flows, our estimation results have shown that the optimal combination to promote economic growth is made between Remittances and ODA. This finding can be interpreted as follows: development assistance seems to be important and necessary for the development of both least developed countries and territories to lower middle income bracket source.

Most significantly, the remittances investigation for these two groups of countries is important. However, we found that the significance of the remittances impact is not always assured. This confirms the study of Rao, B. Bhaskara and Hassan, Gazi (2009), who tried to estimate the remittances impact on economic growth for a panel of 40 countries as large recipients of remittances. Their results showed that remittances have a positive impact on growth, but they (remittances?) are small. Indeed, their estimates showed that remittances may not be significant on economic growth. Conversely, foreign direct investments are in the case of these groups a source having a positive impact, but it is still generally non-significant.

It, then, follows that ODA and remittances are the two most efficient for the economic growth promotion in these two groups of countries. For the conventional variables of economic growth, we note that GDP has a positive and statistically significant effect at the 1% level in any combination. Regarding the effect exerted by inflation, it is negative as expected. As against the M2 variable measuring financial depth has a positive effect in any combination

The results of the fourth group in our sample are summarized in Table 4.

Analysis results of the estimation of the fourth group

- List of upper middle income bracket countries and territories (Group 4): Albania, Algeria, Antigua and Barbuda, Azerbaijan, Barba,

dosBosnie Herzegovina, Belize, Dominican Rép.Équateur, Jordan, Dominique, Tunisia, Lebanon Grena, Costa Rica, Serbia, the St Kitts and Nevis, St Vincent and the Grenadines, St Lucie Mauritrus

For group m4 composed of countries and territories of upper middle-income bracket, the three combinations have announced different results. Beginning with the model No. 1, in which we mixed remittances with official development assistance, the results in table 3 showed that the variable, replaced and delayed, has a positive impact statistically significant at the 1 %. Thus, a 1% increase in remittances will increase the GDP of countries to 0.412% as the GDP of countries receiving remittances, which are, according to the classification of Development Assistance Committee, upper middle income bracket countries and territories.

This contradicts the results of Chami et al (2005) and Raju Singh in January, Markus Haacker, and Kyung-woo Lee (2009), which showed a negative correlation between remittances and GDP growth. According to them, remittances are inadequate to serve as a source of capital for economic development. This is the same for Kadir KARAGÖZ (2009), who worked on the Turkey. However, our empirical results suggest that remittances can have positive effects on economic growth in this group of countries that are in line with those of Bichaka Fayissa Christian Nsiah and Black Hills (2008). The latter show that remittances have a positive impact on African economy, and that they are statistically significant at the 10% GDP per capita countries. Therefore, they found that a 10% increase in remittances of a typical African economy would result in about 0.4% increase in average per capita income.

However, we note that the impact exerted by the ODA delayed by a period has a positive period. However it is not significant for the first combination. For the second model, in which remittances are combined with foreign direct investment, we note that the coefficient assigned to remittances keeps the positive sign and is statistically significant at the 5% level then it confirms the first model results. Thus, a 5% remittances increase will increase 0.068% of the GDP variable. However, the fdi impact is positive but it is not significant.

However, it should be noted that this second model is significant as a whole and its explanatory power exceeds that of the first model. This power exceeds the same, that of the third combination in which we mixed fdi with ODA. Indeed, according to the third column of Table 3 that summarizes the results of the third model, we note that the coefficient assigned to the variable fdi keeps a positive sign and is statistically significant at 10% level as it measures 0.050 .

Therefore, a 10% increase of fdi will increase GDP per capita to 0.050. Regarding the weight assigned to the variable in use, it keeps a positive sign. However, it is still not significant, as is the case for the first combination.

Thus, we can say that the ODA for this group of countries does not effectively participate in the promotion of economic growth. In fact, this group is composed of developing countries that are classified according to the GNI per capita criteria in the top. So, ODA does not represent an important source of external financial sources for developing countries. Thus, we can infer that these countries do not need help. It should be noted that the PED of group 4 is characterized by a large share of remittances as a percentage of their GDP and also by significant amounts of fdi.

It should be noted that the developing countries of group 4 are characterized by a large share of remittances received as a percentage of their GDP and also as a significant fdi amounts.

For the other conventional variables of economic growth, it is clear from this table that the variable inflation always has a negative impact, but it is statistically significant only for the second combination. For the M2 variable reflecting the degree of financial depth always has a positive sign but is not significant in the case of the second model of our study. According to these results, it follows that the variable Remittances represent the most optimal source for the promotion of economic growth in Group 4 of the sample representing the group of upper middle income countries and territories.

The mix between fdi and remittances is the most efficient way to promote economic growth in developing countries in this group combination.

As for the effect exerted by the two conventional variables of economic growth, it is respectively negative for inflation and positive rate of financial depth, whatever is the group in the country and whatever is the model. However, the coefficients assigned to these two are not always significant.

This can be explained by the possibility of an existence of endogeneity between these variables and the GDP per capita growth rate.

CONCLUSION

The purpose of this paper is to conduct an effective comparative study of ODA, remittances and FDI to show what is among the three external sources the most effective and / or by what combination we can have the most optimal ways to support economic growth in developing countries in our sample.

Most notably, the objective of our estimate is to test the mixing impact between external financial sources of and the effect of the remittances investigation with the other two sources. Our estimation focused on three different groups of developing countries namely: the Least Developed Countries, middle-income bracket territories and lower and middle income countries and territories in higher bracket. Our results varied from one combination to another and from one group to the other. Similarly, the

effectiveness of each external capital flows differs according to PED considered in our estimation.

Indeed, our results reveal a degree of convergence between the first and the third group of developing countries. This convergence focuses on the effect of the combination of ODA remittances, accounting for these two groups of countries the optimal combination for the promotion of economic growth in spite of the difference between the rankings of the two groups was based on GDP per capita. Especially, it is in the first position as the most efficient source to stimulate economic growth for these two groups is represented by the remittances and the second position was the official development assistance.

Thus, the remittances investigation is beneficial for both groups of developing countries. Moreover, despite the ODA decline, this source is important for the least developed countries as well as countries and territories to lower middle-income bracket. This contradicts the opinion of critics who think that ODA is not especially useful for the case of the third and the fourth group and should be replaced by remittances.

For foreign direct investments, they have a positive impact in the case of these two groups of countries; however, this impact is not significant. It then follows that, despite the large fdi volume particularly to developing countries in the third group, the effect of these flows isn't important. It should be noted that middle income bracket countries and territories below represent the major receivers of remittances. Nevertheless, fdi is slightly beyond remittances. Regarding the month advanced countries, we observe from the results of estimation that the operating ODA is beneficial to support the economic growth of these countries and that despite its remarkable recent decline to these flows, it contributes greatly to promote growth.

It is worth noting that there is a partial convergence in estimation results for the fourth countries group with those of the second and third group of developing countries. This convergence concerns the remittances impact. Indeed, our results reveal that remittances keep a positive sign and significance in the case of upper middle income bracket countries and territories. This is not the case for ODA that has a positive impact but not significant in the case of these countries. However, fdi have a positive and statistically significant impact.

If we opt for a ranking between the efficiency of the three external sources of financing for development, we see that this ranking varies from one group to another. But in general remittances are the most effective source for these three PED groups while ODA is in the second position after remittances.

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