Part II: International Capital Flows

Financial Development, Remittances, and Economic Growth in Senegal

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Abstract

The fundamental challenge about remittances is that they are viewed as a new source of development finance. Focusing on the case of Senegal in the period 1974 to 2005, this paper analyses how financial development affects the impact of remittances on economic growth. The empirical analysis reveals a positive and significant interaction between remittances and financial instruments, suggesting that the marginal impact of remittances on economic growth is strengthened by the level of financial depth. These results, thus, support evidence of complementarity between remittances and financial depth in promoting economic growth. This implies that it is important to channel remittance flows more towards productive investment, so that the development of the financial system improves the effect of remittances on growth.

Keywords: Remittances; financial development; economic growth

1. Introduction

The subject of remittances is not new. The 2007 International Monetary Fund's Balance of Payments Statistics show that remittances have been increasing since the 1970s. However, there are several reasons for the growing interest in these private capital flows. First, remittances have become an increasingly important channel through which developing countries meet their external financing needs. As a result, the fundamental challenge of remittances is that they are viewed as a new source of development finance (Ratha 2003; Spatafora, 2005).

Second, empirical studies have found that migrant remittances are less volatile. They are more stable and reliable compared to other financial flows, such as official development assistance and foreign direct investment (Ratha 2003; Buch & Kuckulenz 2004; Gupta, Pattillo and Wagh 2007).

Third, migrant remittances are playing an increasingly important role in the balance of payments of many developing countries, and can significantly contribute to reducing the vulnerability of their external positions (Bouhga-Hagbe 2006).

Lastly, recent studies have found that migrant remittances are a useful and effective way of reducing poverty and income inequality (Baruah 2006; Gupta et al. 2007; Chami *et al.* 2008).

This article examines the following research questions, focusing on Senegal over the 1974-2005 period: Does financial development enhance the impact of remittances on economic growth? Do remittances help boost growth in shallow financial systems?

Senegal is an important example because it has high levels of migration and its informal remittance channels are contracting sharply (African Development Bank 2008). According to Gupta *et al.* (2007), in 2005, Senegal was among the top 10 recipients of remittances in sub-Saharan Africa. It was ranked third by absolute amounts of migrant remittances, fourth in terms of remittances as a percentage of GDP, and fifth according to the remittances-export ratio. Figure A.1 in Annex 1 also shows Senegal's high ranking among other Franc Zone remittance recipient countries over the 1974-2005 period.

Although the impact of remittances on economic growth has been analysed in the literature on the macroeconomics of migrant remittances (Chami, Fullenkamp and Jahjah 2003; Giuliano and Ruiz-Arranz 2005; and Chami, Barajas *et al.* 2008), to our knowledge, most of this research, apart from Giuliano and Ruiz-Arranz (2005), failed to conduct an empirical examination of the channels through which remittances influence growth. Our study therefore focuses on the financial development channel to determine whether there is a complementarity or substitutability between remittances and financial instruments in the promotion of growth (Giuliano and Ruiz-Arranz 2005). This paper will contribute to a better understanding of the role played by the financial system in influencing the impact of remittances on Senegal's economic growth.

The concept of financial development typically refers to both the banking sector and the financial markets (Levine, Loayza, and Beck 2000; King and Levine 1993; Giuliano and Ruiz-Arranz 2005). In this study, we use two indicators of financial development, both of which refer to the banking sector. First is the liquid liabilities to GDP ratio. Second is the deposits-to-GDP ratio, where deposits are defined as the sum of sight deposits, time deposits, savings deposits, and foreign currency deposits (International Monetary Fund, International Financial Statistics 2007).

The remainder of this paper is structured as follows. The next section presents stylised facts about migrant remittances, and highlights the challenges they create for Senegal's economy. The section that follows examines the data used in the study. The last section sets out the results of the econometric analysis and their policy implications.

2. Remittances to Senegal: Stylised Facts and Challenges

2.1. Stylised facts about remittances to Senegal

Figure 1 below shows a sharp uptrend in remittances by Senegalese migrants. Over a 32-year period (1974-2005), remittances have fallen on only ten occasions. There is no regular pattern to the downturns, which occurred every year between 1981 and 1984 and then in 1993 and 1994. The last year in which a fall was recorded was 1998. Since 1999, therefore, remittances have grown by an average of 33 percent per annum. In absolute terms, Senegalese migrants remitted USD 129.7 million in 1999 and USD 633 million in 2005.

Figure 1 also shows that during the 1974-2005 period, remittances slightly exceeded foreign direct investment (FDI), but were lower than official development assistance. However, remittances are clearly less volatile and therefore more stable than these other capital inflows. The stability of remittances could reduce the Senegalese government's need to draw on international capital.

Figure 1. *Remittances, Aid, and Foreign Direct investment in Senegal: 1974-2005*
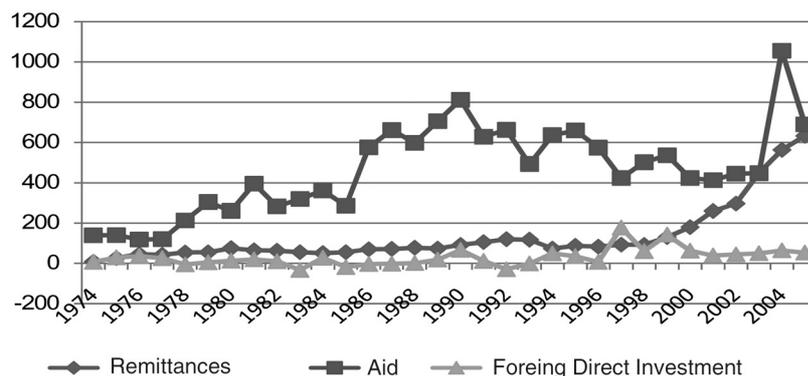
Source: The author has used data published by:
- World Bank, World Development Indicators (2007)
- IMF, Balance of Payments Statistics (2007)

Table 1. *Descriptive Statistics for Remittances to Senegal, 1974-2005 (USD million)*

Statistic	Remittances
Cumulative	4,250
Mean	132.78
Median	75.98
Minimum	7.77
Maximum	633
Standard deviation	149.89
Coefficient of variation*	112.88%

Source: Author's calculations based on data published by the International Monetary Fund (2007), Balance of Payments Statistics (2007)
* The coefficient of variation equals the standard deviation divided by the mean.

Table 1 gives descriptive statistics for Senegalese migrant remittances. Over the 1974-2005 period, Senegal received USD 4,250 million by way of migrant remittances. This comes to an average of about USD 133 million per annum. The table also shows that 50 percent of migrants sent their families less than USD 76 million, which is less than 57 percent of average annual remittances. Remittance levels varied tremendously over the period as a whole from approximately USD 8 million to a maximum of USD 633 million. This demonstrates a large dispersion in remittances, at 113 percent. Because of this large dispersion, the « Dutch disease »[2] (Gupta *et al*. 2007) effect of remittances was relatively contained.

2.2. Remittances: What are the challenges for Senegal?

The impact indicators in Table 2 below highlight the challenges created by migrant remittances for Senegal's economy. The table shows that in the 1974-2005 period, remittances accounted for more than half of Senegal's GDP in 2005 (77 percent).

However, the main drawback of the remittances-to-GDP ratio is that it does not answer the following question: What is the level of output gains generated in the economy by reinvesting remittances in productive cycles?

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2. Dutch disease is a concept that describes the problems the Dutch faced following the discovery and exploitation of vast domestic reserves of natural gas. The literature on the subject divides the effects of Dutch disease into a « resource movement effect », a « spending effect » and an « exchange rate effect » (Corden 1984; van Wijnbergen, 1984; Neary and van Wijnbergen 2000; Carneiro 2007). A resource movement effect occurs when the booming natural resources sector attracts resources (skills, capital, public spending, etc.) from other sectors. A spending effect occurs if the revenue from natural resources causes growth in demand (and therefore in inflation) in other sectors of the economy. An exchange rate effect occurs when a large inflow of foreign exchange from exports of oil and natural gas causes the real exchange rate to appreciate.

To answer this, we highlight the ratio of remittances to the ICOR[3]. The results show that using remittances for productive activities would enable the country's economy to generate additional output estimated at USD 964.11 million. Remittances sent home by Senegalese migrants could therefore be a source of increased output and consequently, enhanced economic growth.

Our calculations put remittances six times higher than the official development assistance (ODA) received by Senegal in 2005 and more than 1.12 times Senegal's external debt contracted in the same year. This implies that the migrant remittance market could help Senegal make significant cutbacks in its development assistance and external debt requirements, thereby reducing the country's dependence on bilateral and multilateral cooperation.

The other indicator that highlights the importance of the remittances market is the remittances-to-total exports ratio. We estimate that migrant remittances to Senegal were about three times higher than the value of the country's total recorded exports in 2005. This conclusion suggests that remittances play a very important role in Senegal's balance of payments by significantly reducing the vulnerability of its external position.

Furthermore, if remittances were reinvested in productive activities, this could generate more jobs in the economy. But how do we estimate how many extra jobs this might be? We do this by defining an indicator for the ratio of remittances to the incremental labour to capital ratio (ILCR)[4]. Table 2 gives the results, which show that redirect remittances towards productive channels would create 700,000 additional jobs in Senegal's economy.

Table 2 shows that in the 1974-2005 period, per capita remittances to Senegal totalled USD 365. Assuming that per capita remittances represent additional income for each recipient, it follows that a recipient's per capita income is the sum of migrant remittances and per capita GDP[5]. By analogy, in terms of official development assistance, per capita income equals per capita official development assistance plus per capita GDP. We calculate that the income of every Senegalese would be USD 838.5 after factoring in remittances, compared with a lower amount of USD 532.7 after official development assistance. The microeconomic impact of remittances on Senegal is therefore greater than that of official development assistance.

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3. ICOR (Incremental Capital Output Ratio) shows the output gains generated per unit of capital. It is the ratio between the change in capital (investment or gross fixed capital formation) and the change in output (GDP) (Beja, Junvith and Ragusett 2004).
4. ILCR (Incremental Labour to Capital Ratio) indicates the number of additional jobs created per unit of capital. It is the ratio of the change in employment to the change in capital (investment or gross fixed capital formation) (Beja *et al.* 2004).
5. Since the calculation of per capita GDP does not take account of per capital remittances, it follows that the total per capita income of a recipient of remittances is equal to the sum of their per capita GDP and per capita remittances.

Table 2. *Impact Indicators for Remittances to Senegal, 1974-2005*

Indicators	Estimated
Remittances/GDP	0.77
Remittances/official development assistance	6.17
Remittances/external debt	1.12
Remittances/total exports	2.94
Remittances/ICOR (USD million)	964.11
Remittances*ILCR (million)	0.70
Per capita remittances (USD)	365
Per capita GDP (USD)	473.55
Per capita official development assistance (USD)	59.12

Source: The author has used data published by:
- World Bank, World Development Indicators (2007)
- World Bank, Global Development Finance (2007)
- IMF , Balance of Payments Statistics (2007)
- IMF, Direction of Trade Statistics (2007)

Based on the preceding estimates, therefore, we can show that migrant remittances present the economy of Senegal with several highly strategic challenges, which may be summarised as follows:

– Remittances are a means of increasing output and therefore economic growth.

– Remittances are a means of reducing Senegal's dependence on bilateral and multilateral support.

– Remittances are a means of improving Senegal's external position.

– Remittances are a means of creating additional jobs in Senegal.

– Remittances are a means of reducing poverty by increasing the per capita income of every Senegalese recipient.

However, these economic challenges are underpinned by the core hypothesis that greater use be made of remittances for financing productive investments. In other words, the challenge for Senegal's policy makers is to channel migrant remittances towards productive jobs.

3. Data Analysis

Senegal is the only country in the sample for this paper. Annual data from 1974 to 2005 are used for the dependent variable and the explanatory variables. Table A.3 in Annex 4 gives the definitions and sources of these variables. The dependent variable is the real GDP growth rate.

Independent Variables

Past Growth Rates

As explanatory variables, we have taken two lags of GDP growth, namely a one-year lagged growth rate and a two-year lagged growth rate. These

lagged variables show how the past growth rate influences the current growth rate. The impact can be either positive or negative.

Remittances

We have used the logarithm of the ratio of migrant worker remittances to GDP (International Monetary Fund, Balance of Payments Statistics 2007). The annual values for migrant worker remittances are shown in Table A.1 in Annex 2. We expect remittances to have a positive impact on economic growth.

Financial Development

We have used two indicators to measure financial development: The first one is the estimated size of the financial system based on the ratio of total liquid liabilities (M3) to GDP (Ndikumana and Boyce 2003). Second is the ratio of deposits to GDP, where deposits are defined as the sum of sight deposits, time deposits, savings deposits, and foreign currency deposits (IMF, International Financial Statistics 2007). The size of the financial system and the ratio of deposits to GDP are determined by logarithmic regressions. These variables are expected to have a positive impact on growth.

Interaction Between Remittances and Financial Development

To determine how financial development influences the impact of remittances on economic growth, we have used as an independent variable, the interaction between financial development and remittances (Giuliano and Ruiz-Arranz 2005). This interaction is measured by the product of the logarithms of these two variables. This interaction can affect economic growth positively or negatively. If the impact of this interaction is positive, there is complementarity between the way remittances and financial development impact growth. If the coefficient of this interaction is negative, there is a substitutability relationship between remittances and financial development.

We have also considered other variables for testing the role of financial development in the impact of remittances on growth. Of these variables, we have used the following[6]:

Inflation Rate

The inflation rate we have used is the annual change in the consumer price index (World Bank, World Development Indicators 2007). We expect inflation to have a negative effect on growth rates.

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6. In the literature on the subject, human capital has also been shown to be an explanatory variable for the rate of growth. However, we have not used human capital because in Barro and Lee (2000), the data are available on a five-year and not on an annual basis.

Degree of Economic Openness

The degree of economic openness is equal to the ratio of the sum of exports and imports to GDP. We have used the logarithm of the degree of economic openness as the independent variable for the econometric analysis. The degree of economic openness can affect growth rates positively or negatively.

Investment

For investment, we have used the logarithm of the ratio of gross fixed capital formation to GDP. Macroeconomic theory defines investment as the engine of economic growth. Its impact is therefore positive.

4.   Econometric Investigation

4.1.   Estimation Methodology

To examine how economic growth can be affected by the interaction between financial development and migrant remittances, we specified the following estimation equation:

$$TCP_t = \delta_0 + \delta_1 TCP_{t-1} + \delta_2 TCP_{t-2} + \delta_3 LogTFMP_t + \delta_4 LogDEFI_t +$$
$$\delta_5(LogTFMP_t{}^*LogDEFI_t) + \delta_6 X_t + \varepsilon_t$$

GDPGR is the real GDP growth rate, LogREM/GDP the logarithm of the ratio of migrant remittances to GDP, and LogFD the logarithm of financial development. The indicators of financial development examined are the logarithm of the size of the financial system (LogSFS) as measured by M3/GDP and the logarithm of the ratio of deposits to GDP (LogDEP) as measured by the sum of sight deposits, time deposits, savings deposits, and foreign currency deposits). (LogREM/GDP*LogFD) is a measure of the interaction between remittances and financial development[7]. X represents the vector of the control variables, which include the rate of inflation (INF) as measured by the annual variation in the consumer price index, the logarithm of the degree of economic openness (LogDEO) estimated from the ratio of total exports and imports to GDP, and the logarithm of investment (LogINV) as measured by the ratio of gross fixed capital formation to GDP. ε is the error term.

In econometric regressions, we use the two-stage least squares method. This method is chosen because there are variables that may be endogenous to

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7.   In addition to the interaction variable (LogREM/GDP*LogFD), we also considered remittances and financial development separately as independent variables to reassure ourselves that the interaction term is not a proxy variable of remittances or financial development (Giuliano and Ruiz-Arranz 2005).

the model. In theory, the scale of migrant remittances and the level of financial development may actually rise when economic growth rate increases. In addition, investment may rise against a backdrop of high economic growth. Remittances, financial instruments, and investment may therefore appear to be endogenous variables in the model. As a result, the error orthogonality hypothesis is violated for ordinary least squares (Kpodar 2005). This is why we address the problem of endogeneity by applying the two-stage least squares method. To this end, we have instrumented these endogenous variables.

The stationarity test for the variables in the model is carried out using the Phillips-Perron unit root test. The results indicated in Table A.2 in Annex 3 show that all the variables are stationary.

4.2. Results of the Econometric Analysis

The results of the econometric regressions performed using the two-stage least squares method are given in Table 3 below.

The coefficient of remittances is positive and statistically significant. This suggests that a rise in remittances by Senegalese migrants is favourable for economic growth in Senegal.

The two indicators of financial development examined (the size of the financial system and deposits)[8] also present positive and significant coefficients. This implies that the improvement in Senegal's financial system helps to increase its rate of growth.

The results also reveal a positive and significant interaction between remittances and financial instruments, suggesting that financial development enhances the impact of remittances on Senegal's economic growth. Consequently, there is a complementarity relationship between remittances and financial instruments. Remittances act as a *de facto* complement to financial services to promote economic growth in Senegal. This result is not dependent on a particular measure of financial development, but remains equally true if other variables – in particular inflation, investment and degree of openness – are controlled.

From another angle, this result reveals a lack of liquidity constraints that would lead to inefficiency in the financial system[9]. The financial market has therefore not failed in its task of satisfying the financial needs of economic agents. The presence of remittances simply tends to build the capacity of the domestic banking system to respond to market needs (Chami *et al.* 2008). As

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8. In addition to these indicators of financial development, we also examined others, such as lending to the private sector and lending by the banking sector. The results from these two indicators were not, however, significant, suggesting that the role of financial development in the impact of remittances on economic growth appears to be sensitive to the chosen method of measuring financial intermediation.

9. Liquidity constraints may arise because the financial system does not help potential entrepreneurs to launch production activities due to a lack of guarantees or high interest rates on loans (Giuliano & Ruiz-Arranz 2005).

Table 3. Remittances, Financial Development and Economic Growth in Senegal

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			Size of financial system			Ratio of deposits to GDP			
$GDPGR_{-1}$	-0.240	-0.283	-0.291	-0.313	-0.250	-0.374	-0.457	-0.380	-0.377
	(1.66)*	(1.77)*	(1.88)*	(1.80)*	(1.50)	(2.58)***	(4.07)***	(2.62)***	(2.68)***
$GDPGR_{-2}$	-0.410	-0.443	-0.450	-0.526	-0.409	-0.535	-0.604	-0.554	-0.538
	(2.15)**	(2.12)**	(2.21)**	(2.75)***	(1.92)*	(2.97)***	(3.93)***	(3.02)***	(3.09)***
LogREM/GDP	0.044	0.475	0.484	0.392	0.508	0.135	0.151	0.114	0.128
	(2.95)***	(1.95)*	(1.90)*	(1.79)*	(2.72)***	(1.56)	(1.38)	(1.15)	(1.90)*
LogSFS		1.296	1.329	1.249	1.402				
		(1.85)*	(1.78)*	(1.98)**	(2.39)**				
LogREM/GDP*LogSFS		0.387	0.396	0.359	0.417				
		(1.87)*	(1.80)*	(1.98)**	(2.54)**				
LogDEP						0.561	0.651	0.518	0.540
						(2.61)***	(2.22)**	(2.20)**	(3.17)***
LogREM/GDP*LogDEP						0.143	0.167	0.134	0.137
						(2.18)**	(1.88)*	(1.94)*	(2.67)***
INF			-0.018				-0.144		
			(0.16)				(1.48)		
$(LogINV)_{-1}$				0.116				0.053	
				(1.77)*				(0.75)	
$(LogDEO)_{-2}$					0.017				-0.017
					(0.28)				(0.26)
Constant	0.200	1.625	1.660	1.640	1.744	0.611	0.683	0.624	0.578
	(4.16)***	(2.01)**	(1.94)*	(2.27)**	(2.60)***	(2.34)**	(1.99)**	(2.48)**	(3.00)***
Observations	29	29	29	28	28	27	27	27	27
R²	0.14	0.23	0.22	0.32	0.16	0.45	0.48	0.48	0.46

Robust z statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
The dependent variable is the rate of economic growth.
Regressions are carried out using the two-stage least squares method.
The definitions for each variable are given in Table A.3 in Annex 4.

a result, remittances do not act as a substitute for the financial market, since there is no inefficiency to compensate for but to instead complement financial instruments by channelling funds towards productive investments in order to stimulate economic growth.

In line with other empirical evidence (Giuliano and Ruiz-Arranz 2005), the results indicate that past growth rates have a negative influence on current growth rates, thereby signifying that low growth rates recorded in the past are associated with high growth rates in the future. The growth rate in Senegal therefore displays a tendency to change behaviour at any moment. There are several reasons for this, including unstable investment behaviour, due to, for example, developments in the macroeconomic or political environment.

Among the control variables, domestic investment has a positive and significant influence on growth rates. However, this result is only valid in the regression if the size of the financial system is taken as a measure of financial development. If the ratio of deposits to GDP is retained as an alternative measure of financial development, investment appears not to be significant.

The effects of other control variables (in particular inflation and the degree of economic openness) are not statistically significant. The non-significant effect of inflation implies that its level does not cause any significant decline in Senegal's economic growth. This may be because Senegal is part of a monetary union (West African Economic and Monetary Union, WAEMU), where inflation rates are, in principle, low (less than three percent, according to the convergence criteria in the Zone). According to the WAEMU Commission, Senegal has regularly complied with this criterion, with a 2.1 percent inflation rate in 2006, for example. Given these low levels of inflation, it may be very difficult for Senegal's government to reduce inflation even further in order to significantly increase economic growth.

4.3. Policy Implications: Promoting Remittances

The results of the econometric regressions reveal that financial development enhances the impact of remittances on economic growth in Senegal. As a result, any policy that aims to stimulate growth must take into account the need to promote the financial system and migrant remittances. Within this context, two economic policy thrusts can be identified.

The first relates to the use of the funds remitted by migrants. As Table 4 below illustrates, a study by the African Development Bank in 2008 reveals that in Senegal, just 11 percent of families who received migrant remittances in 2005 used these funds for productive investments. In absolute terms, the same source indicates that only EUR 66 million were used for productive investments in 2005, while EUR 764 million were channelled towards helping families. EUR 424 million were used to finance real estate. These statistics show that productive investment accounts for the smallest share of remittances, thus implying that the remittances are not being used effectively.

Table 4. *Use of Funds Remitted to Senegal*

Item	% of families
Household consumption	98
Health	81
Education/Training	55
Family real estate	19
Personal real estate	14
Productive investment	11
Social projects	5

Source: African Development Bank (2008)

To improve the impact of remittances on growth, it is vital to use migrant remittances more effectively by channelling more of them towards productive investments (Gupta *et al.* 2007). To achieve this, the first task is to increase the number of migrants who have bank accounts[10]. The banks can then promote productive investment using the remittances by offering financial services, such as savings products and entrepreneurial credit. In light of the social pressure placed on migrants by their families, it is also important to help these migrants to build their savings and investment capacities by assisting them in their efforts to meet the needs of their families. Finally, financial and non-financial support mechanisms need to be put in place to help migrants who sponsor investment projects.

To this end, the government of Senegal must support productive investment, including the identification of projects that could be sponsored by Senegalese migrants. It could also initiate ways of building the technical capacities of the Senegalese in the Diaspora to provide them with skills of managing productive activities, and as well as to finance their projects by establishing a support fund for investment. This fund will be made available to migrants in the form of either credit or guarantees.

In addition to the use of remittances for productive investments, another economic policy thrust that should be retained in order to improve the impact of remittances on growth is to ensure that funds are remitted by migrants through formal channels. To achieve this, it is first necessary to stimulate competition in the remittance market[11], given that one of the findings of the African Development Bank's 2008 study was that the more competition there is in this market, the more likely it is that funds will be remitted through formal channels. In fact, increased competition in the remittance market has the advantage of significantly lowering transaction costs and gradually eliminating informal transfers[12]. Secondly, a strategy to

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10. This is the Hispanic approach to remittances.
11. According to the Anglo-Saxon approach to remittances, competition in the remittance market can be stimulated by introducing more flexible regulations.
12. However, the African Development Bank's 2008 study found that transaction costs are a secondary factor when migrants choose how to remit funds. The choice is primarily determined by beneficiary families, who focus on the criteria of speed and access to the funds.

increase the number of migrants with bank accounts could lead to remittances being made through more formal channels.

5. Conclusion

In this paper, we have examined how financial development affected the impact of migrant remittances on economic growth in Senegal over the 1974-2005 period.

By using the two-stage least squares method to resolve endogeneity problems, we identified results that showed a positive and significant interaction between remittances and financial instruments, indicating that the marginal impact of remittances on economic growth in Senegal is reinforced by the level of financial development in the country. These results, therefore, support the evidence of complementarity between remittances and financial instruments in the promotion of economic growth in Senegal. The results, which are not dependent on a particular measure of financial development, remain true even when the effects of other variables are controlled.

This conclusion implies that, in order to enhance the impact of remittances on growth, they must be used more effectively. In particular, a greater proportion could be directed at productive investments using formal channels.

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Annex

Annex 1. Figure A.1: Senegal's Position Compared with other Recipients of Migrant Remittances in the Franc Area: 1974-2005.

Figure 1a : Total remittances 1974-2005 (millions of US$)

Figure 1b : Remittances in % of GDP
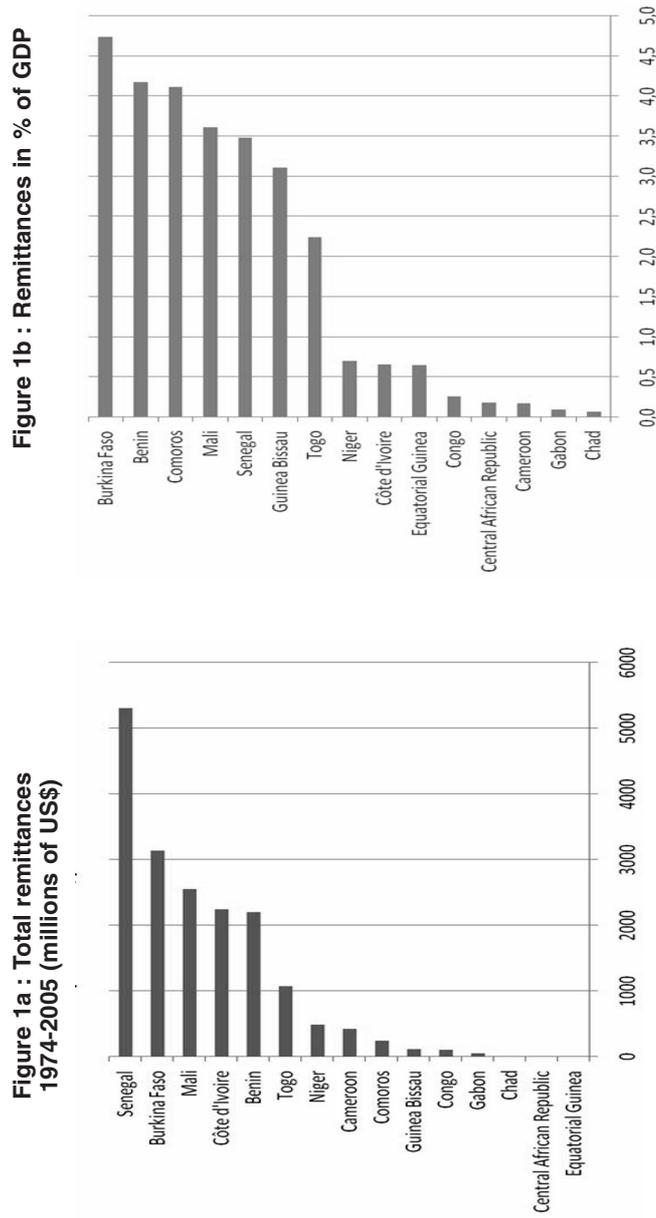
Source: World Bank, *World Development Indicators 2007* (CD-ROM Edition)

Annex 2. Table A.1: Annual Migrant Remittances to Senegal: 1974-2005

Year	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Remittances	7.8	25.4	45.2	42.1	53.7	54.4	74.8	64.5	62.2	55.1	50.3
Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Remittances	55.0	69.3	71.2	77.2	72.8	90.8	105.3	119.5	117.3	73.1	86.5
Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Remittances	82.5	92.5	91.0	129.7	179.2	259.6	296.7	448.2	563.2	633.0	

Source: International Monetary Fund, Balance of Payments Statistics (2007)

Annex 3. *Table A.2: Unit Root Test, Phillips-Perron (in terms of levels of variables)*

Variable	t-statistic	Prob value
TCP	1.90	0.067*
LogTFMP	74.55	0.000**
LogTSF	89.18	0.000**
LogDEP	117.17	0.000**
LogCPP	60.87	0.000**
LogCBP	72.12	0.000**
INF	3.16	0.004**
LogINV	132.01	0.000**
LogDOUV	23.21	0.000**

* significant at 10%; ** significant at 5%; *** significant at 1% The definitions and sources for each variable are given in Table A.3 in Annex 4.

Annex 4. *Table A.3: Definitions and Sources for Each Variable*

Variable	Definition	Source
DEP	Ratio of deposits to GDP	International Monetary Fund (2007), International Financial Statistics (2007)
DEO	Degree of economic openness as measured by the ratio of the sum of exports and imports to GDP	International Monetary Fund (2007), Direction of Trade Statistics (2007)
INF	Rate of inflation as measured by the variation in the consumer price index	World Bank (2007), World Development Indicators (2007)
INV	Investment as measured by the ratio of gross fixed capital formation to GDP	World Bank (2007), World Development Indicators (2007)
GDPGR	GDP growth rate	World Bank (2007), World Development Indicators (2007)
REM/GDP	Ratio of migrant remittances to GDP	International Monetary Fund (2007), Balance of Payments Statistics (2007)
SFS	Size of the financial system as estimated by the ratio of total liquid liabilities (M3) to GDP	World Bank (2007), World Development Indicators (2007)