

Cyclical Proprieties of Workers' Remittances: Evidence for Southern Mediterranean Countries

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Abstract:

The structure of capital inflows into Southern Mediterranean Countries has changed considerably over last decades. Workers' remittance inflows have surpassed inflows of foreign direct investment (FDI) and official development assistance (ODA). Moreover, remittance inflows are often observed to be less volatile source of external funding than private capital and foreign direct investment, witch often move pro-cyclically to GDP.

In this paper we search to analyse the business cycle proprieties of worker's remittances in southern Mediterranean Countries [Algeria, Egypt, Morocco, Turkey and Tunisia]. We also provide a comparison between the cyclical proprieties of worker's remittances and business cycle proprieties of FDI and ODA flows.

The empirical methodology consists firstly to estimate the cyclical component of remittances, FDI, ODA, and output in home and host countries. Secondly, to calculate the correlation between, interest series. Thirdly, to estimate for each country a structural VAR model to determine impulse response functions and variance decompositions to show the predictable response of each variable after a shock to another variable in the system.

Key words: Business Cycle, workers' remittances, Southern Mediterranean Countries, SVAR model, variance decomposition, impulse responses functions.

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Introduction

The structure of capital inflows into developing countries has changed considerably over last decades. Workers' remittance inflows have surpassed inflows of foreign direct investment (FDI) and official development assistance (ODA). As far as Southern Mediterranean Countries are concerned, remittances appear as the most important external financial inflow. Moreover, remittance inflows are often observed to be less volatile source of external funding than private capital and foreign direct investment, which often move pro-cyclically to GDP.

These developments have stimulated a large interest to understand the determinants and the consequences of worker's remittances. In the large body of literature, Remittances are expected to be countercyclical with home country's GDP since migrant workers for altruistic reasons would increase their support their relatives and families home back during downturns cycle. In this configuration, remittances may serve as a hedge against macroeconomic shocks in home countries.

Accordingly it is appears that the decision to remit is a complex phenomenon involving additional factors than the altruistic motive. Sayan [2004] argued that if different variables driving the remittance behaviour are differently influenced by the state of economic activity over the business cycle, it is conceivable that remittances may be procyclical or acyclical in some home countries. The impact of remittances varies largely across countries, due to differences in financial systems, migration patterns and the stage of economic development. These differences emphasize the request for individual country studies to make easy cross country comparisons and establish stylised fact.

Our interest is on the business cycle proprieties of worker's remittances. A clear understanding of the business cycle and its relationship with remittances is necessary for countries with large remittance inflows in order to react adequately to cyclical fluctuations in output. In Southern Mediterranean Countries, remittances rather than foreign aid and FDI are a major source of external funding. In such a context, it is important to evaluate the macroeconomic impact of remittances and, in particular, their potential for reducing output volatility.

Our objective is to describe the business cycle proprieties of worker's remittances in southern Mediterranean Countries [Algeria, Egypt, Morocco, Turkey and Tunisia]. We also provide a comparison of the business cycle proprieties of worker's remittances and business cycle proprieties of FDI flows and ODA flows.

The empirical methodology consists firstly to estimate the cyclical component of remittances, FDI, ODA, and output in home and host countries. Secondly, to calculate the correlation between, interest series. Thirdly, to estimate for each country a structural VAR model to determine impulse response functions and variance decompositions to show the predictable response of each variable after a shock to another variable in the system.

1. Determinants of Workers' remittances

Within a context where remittances represent an important source of foreign exchange and constitute a tool of development, it's important to identify and to asses the principal motivations of a worker's decision to remit money to back home country.

The literature treats the determinant of worker remittances in two main categories. The first approach based on socio-demographic characteristics of immigrant

and their families. The second approach of determinants, considers macroeconomic and political variable as well as variables related to institutional environment.

. Russell [1986] argued that the potential socio-demographic determinants of worker's remittances are: time passed abroad, the ratio of females in population in host country, income level of migrant's family, education level, work experience and material status. Ilahi and Jafarey [1999] completed this list with added variables like the number of children, as well as their education level.

Lucas and Stark [1985] discuss the individual determinants of remittances in Botswana. They demonstrate that the motives to remit can be purely altruistic, may originate from self-interest, or may be due to a mutually beneficial arrangement between the migrant and the family left behind. That is to say, emigrants have the benefit of remitting because they care about household consumption (altruism motivation). Also, they expect to inherit from the household's fortune, invest in assets in his/her home area and expect the household to take care of them (self-interest or exchange). If the emigrant and the household share a contractual insurance agreement and the economic situation of the household deteriorates the emigrant will send more money (insurance payment). Finally, if the migrant's initial human capital is financed by his/her family, remittances of the former would consist in loan payment.

Elbadawi and Rocha [1992], show that the magnitude of remittances depends on the ageing phenomenon workers abroad. (Buch et al [2002], Murrugara [2002], Ameudo-Dorantes and Pozo [2003]) demonstrate that the education level of the migrant is a fundamental socioeconomic determinant of remittances. It implies that the amount of remittances rises with the level of education. Nonetheless Fankhouser [1995] finds that increasing on education level decreases probability of remitting money back home. The author explains this finding as the consequence of the fact that other remuneration possibilities for savings may be considered by the migrant as an alternative to the remittance choice to the home country.

Other studies take into account the gender component and reveal a differentiation in remittance behaviour between men and women. (De la Cruz [1995], Osaki [1999], Tacoli [1999] and De la Brière [2002]) find that women remit more regularly.

The second strand of literature focuses on the macroeconomic determinants. Literature presents the income level in host country as the most common and important variable. Russell [1986] underlined the importance of many other macroeconomic factors such as the number of migrants, the economic situation of both host and home country, exchange rate, differential interest rate, black market premium, institutional environment at home country and the remittance infrastructure.

Katseli and Glytsos [1986] find that remittances are negatively related to inflation in the home countries, host country income and host country interest rate. Glytsos [1997] distinguishes between remittances sent by temporary migrants and remittances sent by permanent migrants. His results suggest that temporary migrants are more likely to remit for investment and future consumption smoothing. Permanent migrants are more likely to remit for altruistic purposes

El-Sakka and McNabb [1999] assess the macroeconomic determinants of workers' remittances and import's income elasticity financed by remittances for Egypt. They find that the black market premium and interest rate differentials are important variables explaining remittances. They also uncover that import financed through remittances have a very high income elasticity which implies that these imports are consumer durables and luxury goods or that they are undertaken by higher income

groups. This study finds out a positive relationship between domestic inflation and remittances. This means that for Egypt altruistic motives dominate remittances decision.

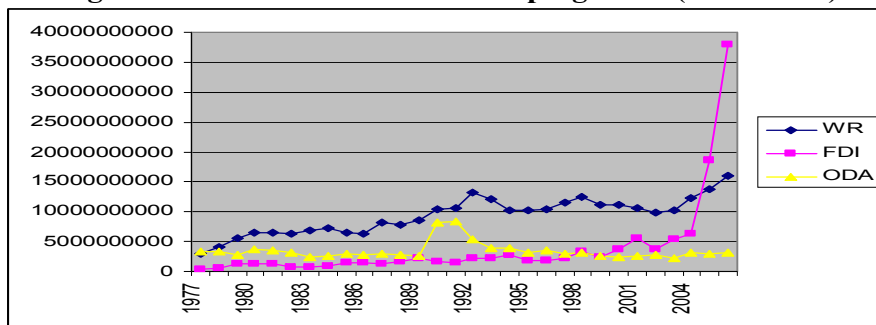
Faini [1994] treats the issue of the effect of real exchange rate depreciation on remittances. The main result is that real exchange rate depreciation of the home currency has a positive effect on remittances. Huang and Vargas-Silva [2006] search to determine whether the host and/ or home country conditions are the one affecting remittances and they find that host country economic condition is the most important factors affecting remittance decision.

2. Remittances in Southern Mediterranean Countries: Stylized Facts

Following World Bank reports, more than half of all remittances received by developing countries flow to lower middle-income countries while 28% flow to low income countries and 17% to upper-middle income countries.

Growing steadily since 1970's, remittances flows have become the most important source of external financing for SMC. They outmatch largely FDI inflows and ODA, except during 2005 and 2006 when we show that FDI inflows exceeded remittances inflows reflecting the magnitude of resources providing from privatization programme in these countries (Egypt, Morocco and Tunisia).

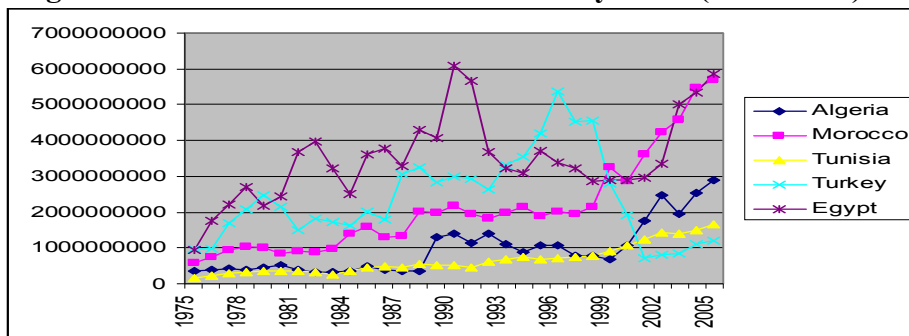
Figure 1: Resource flows to developing SMC (US dollars)



Source: WDI 2009

Recorded remittances received by SMC exceeded \$ 17 billions in 2007. This amount including only officially recorded transfers and appears as the most important external financial resources. Many arguments are addressed to explain this fact. Over the last decades Mediterranean countries such as Algeria, Tunisia, Morocco, Egypt and Turkey have sent considerable number of workers to the European Union area and Gulf countries (case of Egyptian migrants). This has not reduced higher unemployment rates encountered by surplus-labour countries around Mediterranean, but also created a sizeable source of foreign exchange for these countries.

Figure 2: Workers remittances received by SMC (US dollars)



Source: WDI 2009

In Morocco and Tunisia, remittance flows increasing continuously and remain quite stable over the time around 4% of GDP for Tunisia and 7% of GDP for Morocco. Since 2000, workers remittances to Morocco growing rapidly and reached \$ 5.4 billions dollars representing 8.4% of Morocco's GDP. This result reflects reducing of remittances fees witch permit to conduit remittances from unofficial channel to official ones. Another explication is given by the fact that it becomes more attractive for Moroccan's migrants to remit money to their back home country regarding the presence of Moroccan Bank in Europe witch play an important role to collect the saving of Moroccan's migrants. Also the government search to draw a large flows of workers remittances through the suppression of foreign exchange restrictions, promoting fiscal advantages for migrants and devaluating Dirham witch increasing the value of foreign currency.

It seems clear that workers remittances to Egypt fluctuate more than other Mediterranean countries. Argument given is related to oil prices fluctuations and the performance of oil industry. In fact, many expatriates Egyptians work in gulf countries (2 millions). The several part of these migrants are employed directly by oil industry, almost all depend on indirectly, as do most people in the Gulf countries. Although from time to time, Gulf governments moot plans to reduce their dependence on Egyptian workers, replacing them with cheaper Asian migrants. Since 2003, after many years of weak economic performance and external shocks (the Intifada, 9/11 events, Iraq war), Egypt stated to enjoy a sizeable amount of remittances and regain the performance attuned during the period 1992-1993 (Gulf war) and since them remittances decrease dramatically until 2003.

Figure 2 demonstrates that workers' remittances flows to Turkey started to improve in 1979 until 1998 since the government started to devalue the Turkish lira as the first attempt to correct a large exchange rate misalignment. The flow declined in 1999, the year of the great earthquake disaster, witch points out the dominance of investment motive as the possible driving force of migrant remittances, rather than the motive of smoothing consumption of the families left behind. Also the two economic crises in 2000 and 2001 can be responsible of this decrease.

Table 1: Remittances received by SMC in 2006 (milliards of dollars)

	Algeria	Egypt	Morocco	Tunisia	Turkey
Total remittances	2527	5329	5454	1510	1111
as% of GDP	2.16%	4.95%	8.33%	4.87%	0.21%
as % of FDI	141%	53%	202%	193%	9%
as % of ODA	1212%	610%	522%	382%	195%

Source: WDI 2009

Table 1 gives an idea about the magnitude and relative importance of remittances flows received by SMC. Regarding total remittances received, Morocco was the foremost receiving country in 2006 before Egypt, Algeria, Tunisia and Turkey. Treating the ratio of remittances to GDP, Morocco comes out, usually, the first receiving country with steady remittances' share close to 8%. In Tunisia and Egypt remittances represent 5% of GDP before Algeria with 2.16% and finally Turkey for witch remittances represent only 0.2% of GDP. In comparison with ODA and FDI inflows we conclude the domination of workers transfers in external resources flows received by SMC's expect for Turkey and Egypt for witch the most important external financing was FDI inflows.

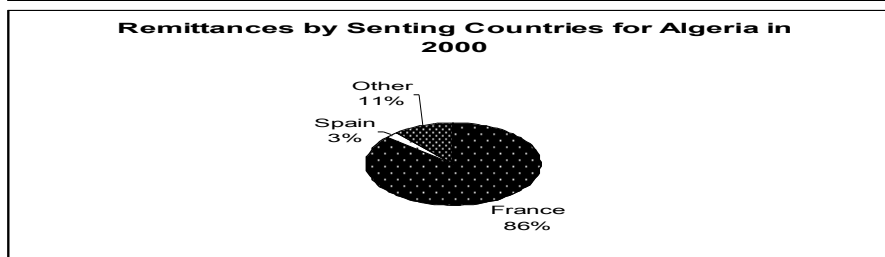
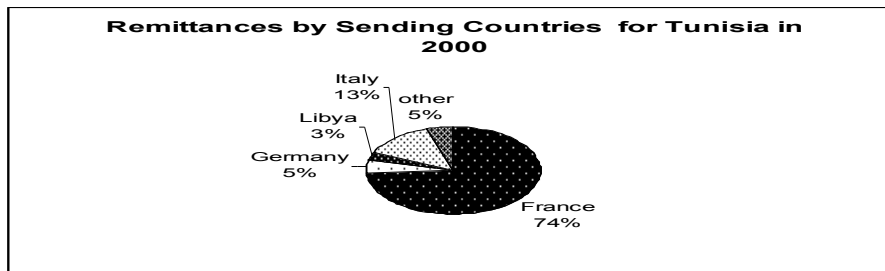
3. Demographic aspect of workers remittances sending to Southern Mediterranean Countries

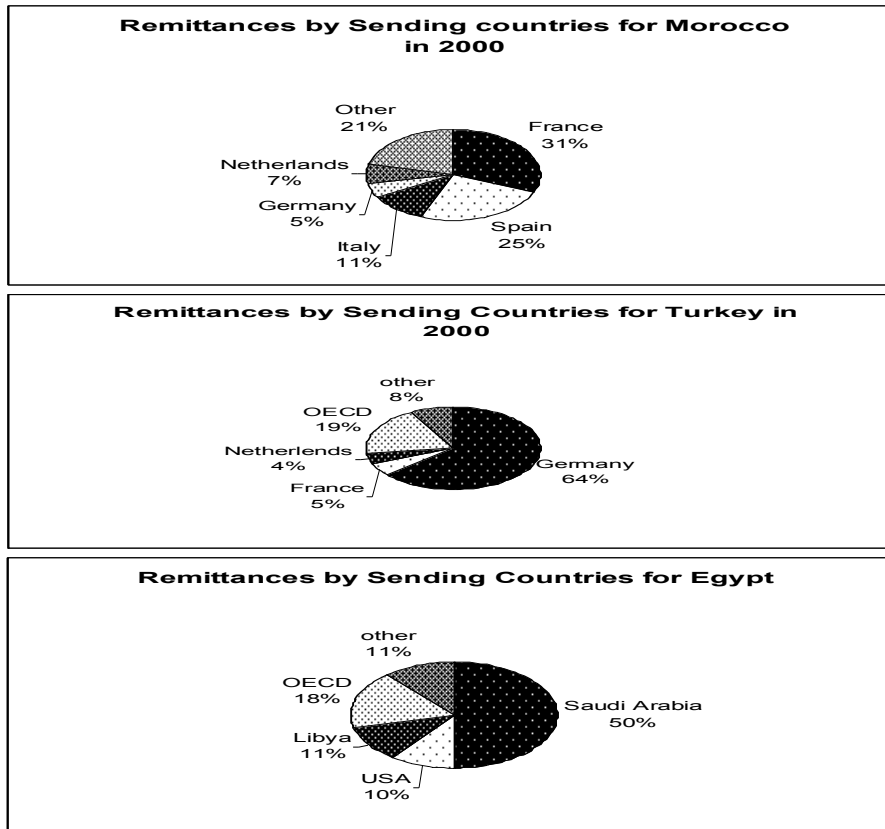
To complete analyzes of workers remittances in Southern Mediterranean Countries it is important to take into account the demographic aspect of migration via an assessment of migrant population living abroad because it is commonly assumed that the principal home countries are equally the major remittance sending countries.

Flows to SMC originate mainly in the euro area except Egypt for which Gulf countries receive the majority of Egyptian migrants and 50% of Egypt's remittances come from Saudi Arabia. The second main important destinations for Egyptian migrants are the OECD countries in which the major receiving country is the United States.

National data indicate that 31% of Morocco's remittances stem from France and 25% from Spain. Central bank data also show that 68% of Tunisia's and 84% of Algeria's remittance inflows are transfers from France. Germany is the main receiving country for the Turkish migrants; this fact is the consequence of bilateral agreements between two countries since the early 1960s. Turkish migrants living in Germany represent 68% of total migrant population living abroad.

As remittances to Maghreb countries and Turkey mainly provided from European countries and consequently occur to be more stable than remittances inflows received by Egypt from Gulf countries which depend directly on oil industry performance and oil prices fluctuations. Mouhoud, Odinet and Unan [2008] confirm this idea and argued that the outflows remittances from main host countries are relatively stable compared to the inflow of remittances to SMC. However the remittance outflows from the new host countries of the Moroccan and Tunisian migrants Italy and Spain start to increase in last years. Finally we find that Morocco stock of migrant is jointly the largest and the most dispersed in Western Europe in comparison with the other SMC.





4. Workers remittances and business cycle: an overview of literature

The starting point to distinct cyclicity is a recent work of Kaminsky, Reinhart and Végh [2004] in which they defined cyclical properties as the correlation between the cyclical components of net capital flows in the countries and its output. The migration literatures have borrowed this definition to illustrate the relationship between cyclical components of remittances and home countries' income level. In this context, remittances are said to be countercyclical (procyclical) when correlation between their cyclical component and output are negative (positive). This means that remittances would be expected to move in the opposite direction with the business cycle, increasing whenever there is a stagnation or economic crisis in home countries and falling whenever home country economy does well. In this configuration we argue that altruistic motives dominate remittances decision because migrant workers increase their support to family members during down cycles of economic activity back home to help them compensate for lost family income due to unemployment or other crisis-induced reasons (Sayan [2004]). Countercyclicity of workers' remittances serve as a hedge against macroeconomic shocks and a stabilizing factor that helps to smooth out large fluctuations in the national income observed over different phases of the business cycle. In the case of procyclicity with home country business cycle, remittances may act as a destabilizing force; this would increase the capacity of swings in remittance flows to produce additional fluctuations in output or current account balances, with serious macroeconomic effects (Sayan [2004]).

It seems clear that the starting point for dealing with cyclicity is the assumptions behind the decision to remit. According to our previous analyses we find that there exist two streams of thought depending on the prevalence of consumption smoothing (altruism) or portfolio motives. If the former are assumed, countercyclicity

is straightforward. Remittances would be compensatory in the sense that they would compensate for poor economic performance in the home country. On the other hand, procyclicality would be linked to a search of investment opportunities, because migrants would tend to send their remittances when the economic situation in the home country is favourable (Salomone [2006]).

This kind of analysis leads us to claim the difficulties to generalize cyclical proprieties of remittances to all countries and in definitive way. We evolve the argument that cyclical proprieties of remittances change over the time for this reasons the role of economic situation in the host country must be more encountered. Regarding to this, even if remittances move countercyclically with the output of home countries, the business cycle in home and host countries may be synchronic, thereby making it difficult for migrant workers employed in a crisis-struck host country to help out family members facing similar condition back home (Sayan [2004] and Sayan [2005]).

A few studies investigate the cyclicity of inward remittances, but most do not beyond descriptive statistics. IMF [2005] reports the correlation between detrended global remittances and detrended global GDP and finds that remittances are procyclical albeit to a smaller degree than official aid, exports and portfolio investment. Guiliano and Ruiz-Arranz [2005] use the same approach on a country-by-country basis and show all countries don't exhibit the same cyclical proprieties of their workers remittances. The authors find remittance is procyclical in two thirds of countries and counter-cyclical in the rest. Lueth and Ruiz-Arranz [2006] estimate a gravity model of bilateral remittance flows for a limited number of developing countries and find that remittances are aligned with the business cycle in the home countries. They also decline when the investment and political climate worsen and do not seem to respond to adverse shocks at home. Lueth and Ruiz-Arranz [2006] explore to what extent, workers remittances have helped Sri Lanka against macroeconomic shocks. They estimate a Vector Error Correction Model (VECM) to determine the response of remittances receipts to macroeconomic shocks. They find that remittances receipts are procyclical and decline when the island's currency weakens, undermining their usefulness as shock absorber. On the other hand, remittances increase in response to oil price shocks μ . The procyclicality calls into question the notion that remittances largely motivated by altruism.

Sayan [2004] investigated the cyclical behaviour of Turkish workers' remittances with respect to the Turkish and German output using time series data. Formally, the paper investigates whether there is a relationship between the amounts of remittances sent to Turkey by the large number of Turkish workers living and working in Germany, and up-and-downswings that Turkish and German economies experience. Sayan provide the evidence that Turkish workers remittances are procyclical with the real GDP in Turkey but appear to be acyclical with the German output. He explains this finding because the output fluctuations in Turkey are more volatile than those in Germany. Finally the authors present some macroeconomic implications arguing that remittances constitute a very important source of income for Turkey but in the same time they don't appear as a stabilization instrument against macroeconomic shocks.

Sayan [2006] considers the Countercyclicality versus procyclicality in the context of remittances received by a group of 12 low income and lower-middle income countries during 1976-2003. Cyclical characteristics of remittances are examined by looking at the co-movement between deviations from trend of real remittances and those of real GDP. In this paper Sayan argued that this approach is original and differ from traditional methodology consisting on looking at the relationship between the GDP of home countries and remittances based on regression results. He explain that negative

(positive) relationship between real output and remittances based on time series or panel estimations not necessarily imply that remittances are countercyclical (procyclical) to the business cycle. The analysis treats, separately, 12 countries in the sample individually and as a group. The results provide evidence that remittances are procyclical / acyclical with the output for some countries within the group, even though remittances received by the group as a whole are countercyclical and lead the aggregate GDP cycle by one period. In other words, workers' remittances to home country tend to increase after a period of stagnation/crisis at home, regarding the group as a whole.

Akkoyunlu and Kholodilin [2008] examine the cyclical interaction between the remittances of Turkish workers in Germany and output in both turkey and Germany. In this analysis the authors introduce a new data set covering 1962 to 2004 and divide the original sample into recruitment, family reunification and naturalization periods. They find that the duration of migrants' stay in the host country affects the direction and strength of the relation between remittances and the host and home countries' business cycle. These relationships are analyzed in two ways. First, the cross-correlation between German real GDP and Turkish real GDP and real remittances at different lags and leads were estimated. Second, bi-variate vector autoregression (VAR) are used to investigate the hypothesis of Granger causality between German GNP and Turkish GDP and remittances. Considering the period from 1962 to 2004, they concluded that remittances positively respond to changes in economic activity in the host country and are acyclical to changes in economic activity in the home country.

5. Empirical Methodologies

We conduct our statistical analysis using annual data covering the period 1975-2006. Data were obtained from the database of World Bank (WDI). The aim objective of this empirical investigation is to asses the business cycle proprieties of workers' remittances in southern Mediterranean countries and also to discuss key differences between the cyclical proprieties of remittances inflows and the cyclical proprieties of foreign direct investment (FDI) and Official Development Assistance (ODA).

According to Sayan [2004], we employ gross national product (GNP) to proxy the host country's income, whereas as a measure of the home country's income, we use gross domestic product (GDP). Sayan [2004] explains that GNP is defined as GDP plus net factor income from abroad (NFI), witch includes net remittances inflows. Therefore, the host country's GNP and the home country's GDP exclude remittances sent to home country by workers setting in host country.

List of variables

	Country	Variables	Units
Home Countries	Algeria	▪ Gross Domestic Product	US Dollars
	Egypt	▪ Workers remittances and compensations of employees received	
	Morocco	▪ Official Development Assistance	
	Turkey	▪ Foreign Direct Investment net inflows	
	Tunisia		
Host Countries	France	▪ Gross National Product	US Dollars
	Spain		
	Germany		
	Saudi Arabic		

Source: World Development Indicators database: World Bank

In order to identify stylized facts of business cycles and to analyze the co-movement between the series; each variable must be detrended through eliminating the long run trend within the series. Detrending each series by removing the estimated trend makes it possible to separate fluctuations (cyclical components) around the trend of each data series, making examination of the statistical properties of the co-movement of deviations of the output and real remittances their respective trends possible (Lucas [1977], Kydland and Prescott [1990]).

The detrending approach adopted in this paper is the band pass filter proposed by Baxter and King [1995]. Using this approach need to select the duration of the business cycle. According to Vargas-Silva [2008] we identify the business cycle as fluctuations lasting no less than two years and no more than eight years.

After the cyclical components for each interest variable have been estimated, the next step consists on estimating correlations between the cyclical components of workers remittances and output in home and host country. We interpret a positive (negative) contemporaneous correlation as reflecting procyclical (countercyclical) behaviour of remittances with the output series in question. Generally, we consider a variable as procyclical (countercyclical) with the real output, if the contemporaneous cross correlation (cross correlation at time $t=0$) is positive (negative) in a statistically significant sense (Kydland and Prescott [1990], Pallage and Robe [2001], Alper [2001], Sayan [2003]). When it not exist a significant correlation between cyclical component of remittances and real output we said that output and remittances are acyclical.

Adding to contemporaneous co-movement, it's usefully to calculate asynchronous correlations between the cyclical components of remittances and real output. This methodology able us to identify possible phase shifts by regarding at how early or how late highest correlation appears relative to the contemporaneous (Sayan [2003]). If we observe the largest significant correlation between remittances and real output when the series is shifted backward (forwards), subsequently the variable is said to be leading (lagging) the cycle.

Establishing correlation between cyclical components of series gives a partial idea about cyclical properties. First, correlations are simple bi-variate statistics witch eliminate possibilities to control for other added variables. Second, correlations do not give information about causality among the variables. In search to perform our previous investigation we estimate a five variables Structural VAR model containing host country's GNP, home country's GDP, remittances, FDI and ODA flows. Resolving the issue of causality involve the potential endogeneity between the variables. According to one preceding analyzes, we display that it is possible for remittances, FDI and ODA to impact host's business cycle, in the same time, it is feasible that these variables respond to changes in host's business cycle.

To measure the response of each variable after a shock to another variable in the system we estimate the impulse response functions. This proceeding constitutes an alternative method to analyse co-movement between interest variables, in other words, if the response of remittances after a shock to host country's output is positive we deduce that worker remittances are procyclical with GDP in host country.

We include in our estimation the following variables: the cyclical components of remittances inflows x^{RW} , FDI inflows x^{FDI} , ODA inflows x^{ODA} , the output in home country Y^{home} and the output in host country Y^{host} . To specify structural model we use to solve the following system:

$$\begin{cases} Y^{host} = \mathcal{G}_1 \\ Y^{home} = \alpha_1 Y^{host} + \alpha_2 x^{RW} + \alpha_3 x^{FDI} + \alpha_4 x^{ODA} + \mathcal{G}_2 \\ x^{RW} = \alpha_5 Y^{host} + \alpha_6 Y^{home} + \mathcal{G}_3 \\ x^{FDI} = \alpha_6 Y^{host} + \alpha_7 Y^{home} + \mathcal{G}_4 \\ x^{ODA} = \alpha_8 Y^{host} + \alpha_9 Y^{home} + \mathcal{G}_5 \end{cases}$$

First we assume that innovations to the cyclical components of host country income are contemporaneously uncorrelated with innovation of other variables. This means that shocks to these countries are exogenous. Secondly, we relate the home country's business cycle with the host country's business cycle, remittances, FDI and ODA. Thirdly, we have that remittance flows are function of business cycle in home and host country. This argument is consistent with the evidence that remittances respond to the changes in economic conditions in home and host countries. Concerning foreign direct investment, we assume that economic conditions in both countries have an effect on these kinds of external flows. Finally, business cycles in home and host countries determine ODA flows.

6- Empirical Results and Interpretation

Correlations between the cyclical components are presented in Table 2. Panel A reports for each country the correlations of the cyclical components of home's output with the cyclical components of workers remittances, FDI, ODA and host's output. Panel B reports the correlations of the cyclical components of remittances, FDI, ODA and home country with the cyclical component of host country.

The central column shows contemporaneous correlation; all other columns show correlation of output with each series shifted forward or backward 1 to 4 years. We highlight the highest such correlation. In the case of procyclicality, we identify possible shifts (leads or lags) by how early or how late with the respect to the contemporaneous this highest correlation appears.

Table (2): Correlations of the Cyclical Components with BP filter

	t-4	t-3	t-2	t-1	t	t+1	t+2	t+3	t+4
(A)Cross correlation between Algeria GDP and: Remittances	-0.09	-0.01	0.28	0.20	-0.24	0.02	-0.10	-0.42	0.10
FDI	0.00	0.13	-0.02	-0.28	0.07	0.21	-0.03	-0.15	0.10
ODA	-0.17	0.06	0.22	-0.08	-0.06	0.18	0.17	-0.44	-0.07
France GNI	-0.16	-0.09	0.14	0.27	0.29	-0.11	0.15	0.06	-0.31
(B)Cross correlation between France GNI and: Remittances	0.27	-0.08	-0.22	0.34	0.28	0.17	0.01	-0.13	0.14
FDI	-0.20	0.05	0.22	-0.05	-0.24	-0.09	0.19	0.13	-0.30
ODA	-0.23	0.01	-0.01	0.34	0.03	-0.11	0.12	0.01	-0.20
Algeria GDP	-0.31	0.06	0.15	-0.11	0.29	0.27	0.14	-0.09	-0.16
(A)Cross correlation between Egypt GDP and: Remittances	-0.08	0.09	0.15	-0.02	0.14	-0.11	-0.07	0.07	-0.17
FDI	-0.04	-0.01	0.29	0.09	-0.07	-0.41	-0.49	-0.02	-0.06
ODA	-0.05	0.07	-0.01	-0.35	0.04	0.21	-0.18	-0.06	0.10
Saudi Arabia GNI	0.22	-0.09	-0.20	0.04	0.23	-0.09	-0.32	-0.23	-0.08
(B)Cross correlation between Saudi Arabia GNI and: Remittances	0.14	0.09	-0.09	-0.06	0.09	0.09	0.24	0.16	-0.09
FDI	0.12	0.21	0.08	-0.07	-0.02	-0.05	-0.07	0.26	0.25
ODA	-0.13	-0.10	-0.01	0.07	0.12	0.05	-0.02	-0.05	-0.09
Egypt GDP	-0.08	-0.23	-0.32	-0.09	0.23	0.04	-0.20	-0.09	0.22
(A)Cross correlation between Tunisia GDP and: Remittances	0.26	-0.12	0.10	0.31	0.48	-0.30	-0.15	-0.06	0.18
FDI	-0.07	0.20	-0.20	-0.09	-0.24	0.31	0.36	0.01	-0.24
ODA	0.18	-0.08	0.07	-0.48	0.19	0.12	0.05	-0.23	-0.15
France GNI	0.21	-0.11	-0.12	0.29	0.88	-0.01	-0.27	-0.08	0.03
(B)Cross correlation between France GNI and: Remittances	0.19	-0.16	-0.11	0.23	0.66	0.02	-0.15	-0.19	0.15
FDI	-0.15	0.12	-0.11	-0.06	-0.27	0.09	0.39	0.09	-0.14
ODA	0.16	0.01	0.06	-0.43	0.11	0.20	0.16	-0.15	-0.11
Tunisia GDP	0.03	-0.08	-0.27	-0.01	0.88	0.29	-0.12	-0.11	0.21
(A)Cross correlation between Turkey GDP and: Remittances	-0.41	-0.31	-0.17	-0.06	0.43	0.14	0.40	0.01	-0.33
FDI	0.00	0.06	0.02	-0.06	0.00	0.56	0.29	-0.09	0.01
ODA	-0.15	-0.21	0.27	-0.13	0.21	0.04	-0.13	0.10	0.08
Germany GNI	0.02	0.08	0.07	0.48	0.42	-0.02	-0.14	0.07	-0.12
(B)Cross correlation between Germany GNI and: Remittances	-0.37	-0.16	-0.37	-0.12	-0.07	0.17	0.39	0.36	-0.02
FDI	0.00	0.03	0.11	-0.12	-0.08	0.22	0.43	0.15	-0.26
ODA	0.19	-0.30	-0.16	0.15	0.19	0.03	-0.29	0.17	0.22
Turkey GDP	-0.12	0.07	-0.14	-0.02	0.42	0.48	0.07	0.08	0.02
(A)Cross correlation between Morocco GDP and: Remittances	-0.01	0.19	0.16	-0.10	0.22	-0.01	0.04	-0.01	-0.23
FDI	0.04	-0.01	0.03	-0.01	0.22	-0.17	-0.18	-0.30	0.09
ODA	-0.06	-0.28	-0.13	-0.03	0.26	0.21	0.06	0.05	-0.05
France GNI	0.06	-0.07	-0.16	0.20	0.86	0.25	-0.36	-0.36	-0.01
Spain GNI	0.09	-0.01	-0.14	0.13	0.80	0.32	-0.16	-0.26	0.05
(B)Cross correlation between France GNI and: Remittances	-0.04	0.22	0.04	-0.05	0.39	0.01	-0.05	-0.11	-0.12
FDI	0.02	0.05	0.04	0.03	0.25	-0.12	-0.17	-0.28	0.12
ODA	-0.12	-0.34	-0.06	0.01	0.22	0.18	-0.02	0.05	0.17
Morocco GDP	-0.01	-0.36	-0.36	0.25	0.86	0.20	-0.16	-0.07	0.06
(C)Cross correlation between Spain GNI and: Remittances	0.05	-0.02	0.13	-0.01	0.39	0.10	-0.01	-0.14	-0.06
FDI	0.02	0.05	0.02	0.01	0.25	-0.09	-0.12	-0.22	0.09
ODA	-0.13	-0.46	-0.12	0.15	0.36	0.23	-0.02	-0.01	0.03
Morocco GDP	0.05	-0.26	-0.16	0.32	0.80	0.13	-0.14	-0.01	0.09

$\rho(x_t^c, y_t^c) = \sigma_r = T^{-\frac{1}{2}}$, T numbers of observation, Procyclical: $\rho(x_t^c, y_t^c) > 0$; Acyclical: $\rho(x_t^c, y_t^c) = 0$
Counter-cyclical: $\rho(x_t^c, y_t^c) < 0$

Looking to individual results we find that remittances flows are associated positively and significantly with the Turkish's output. The contemporaneous correlation coefficient is 0.43 implying that workers' remittances to Turkey are procyclical with output in home country. This finding gives more evidences about determinants of remittances to Turkey. We explain that Turkish worker abroad were sensible to development stage in the Turkish economy for reasons other than an altruistic desire to help relatives back home and to smooth their consumption.. Specifically, as shown by a considerable number of studies the decision to remit is a complex phenomenon involving other factors than the altruistic motivation and the procyclical behaviour illustrate the dominance of investment motives in the decision to remit in Turkey (Sayan [2003], [2004], and [2006]). On the other hand, the correlation between the cyclical components of FDI and ODA and the cyclical component of Turkish's output is positive. FDI and ODA flows appear to be procyclical with respect to Turkish's business cycle.

Regarding the correlation between cyclical components of remittances, FDI and Turkish's output with the cyclical component of Germany output. A positive and significant cross correlation between German output and remittances is found at lead 2 meaning that remittance flows to Turkey are procyclical and leading the German GNP by two years. Likewise we find that lags of FDI seem to be procyclical with the German GNP. We conclude that workers remittances and FDI to Turkey are procyclical with to host and home country and may act as produce destabilizing force since this would increase the capacity of external financing flows to produce additional fluctuations in output or current account balances, with serious macroeconomic effects (Sayan [2006]).

Concerning Algeria, leads remittances exhibit a countercyclical behaviour with respect to Algerian's business cycle. We show that remittances are correlated negatively and significantly with Algerian GDP. The asynchronous (lead3) correlation coefficient is 0.42 meaning that worker remittances flows to Algeria lead Algerian GDP by 3 years. Accordingly, altruistic motivations drive mainly decision to remit for Algerian Workers living in France. Alternatively, Algeria can implement also FDI and ODA inflows as a hedge against macroeconomic shocks regarding the countercyclical behaviour of these flows with respect to Algerian's business cycle. Consequently, remittances, ODA and FDI flows to Algeria appear to move in the opposite direction as the Algerian output and serve as stabilization factor against economic fluctuations.

Relating to the co-movement with France GNP, results in table 2 indicate that remittances sent to Algeria move in same direction as the French business cycle. We can say that Algerian's worker remittances are procyclical with the respect business cycle in the host country (France). Given the location of the highest significant correlation of 0.34, the result indicates that remittances flow the business cycle in France by a lag of one year. Interesting to the dynamic of FDI we find that leads of FDI seem to be countercyclical with GNP in France.

Given the positive sign and statistical significance of the contemporaneous correlation coefficient, remittances sent to Tunisia move in the same trend with the business cycle in Tunisia and France. Workers remittances are procyclical with GDP in Tunisia and GNP in France. Tunisian workers in France take their decisions to sent money to their relative relatives back home on the basis of investment opportunities given in the home country. In other words Tunisian workers are more attentive to the economic condition in Tunisia for reasons other than smoothing consumption of their

relatives back homes. Provided that we affirm that economic condition in home and host country affect positively workers remittances to Tunisia. In addition we observe a leading procyclical relationship between FDI inflows, Tunisia GDP and France GNP. It appears that ODA and FDI flows to Tunisia are equally driven by economic conditions in Tunisia and France economies. In the same context it is important to reveal the destabilizing role of worker remittances ODA and FDI in the context of macroeconomic fluctuation affecting Tunisian economy as regards of their procyclical dynamics.

Egyptian worker's remittances are countercyclical with the GDP in Egypt. The cyclical component of remittances series is strongly negatively correlated with the cyclical component of Egyptian GDP. The largest correlation occurs when the remittances series is shifted forward by 4 years. As long as the corresponding coefficient value 0.17 is significant, the remittances appear to be lagging the output by 4 years. Then again, we demonstrate that lags of remittances seem to procyclical with respect to the business cycle of Arabic Saudi. This implies that workers remittances to Egypt move in the same direction with GNP in host country and in opposite path with the GDP of home country. In comparison with workers remittances inwards we perceive that FDI inflows display a countercyclical relationship with Egyptian GDP and procyclical behaviour with GNP of Saudi Arabic. Basing on these results workers remittances play an important role to promote developing in Egyptian economy by reducing poverty explaining by the dominance of altruistic motives in the decision of remittances and reducing vulnerability against macroeconomic shocks.

Assessing the case of Morocco we find that it exist a positive and significant relationship between workers remittances and GDP of Morocco. Moreover, this relationship does not seem to be sensitive to the use of leads or lags. We conclude that remittances to Morocco seem to procyclical with respect to Morocco's business cycle. Based on these results, one can conclude that there is a strong co-movement between remittances to Morocco and economic condition in home country, implying that Moroccan workers abroad closely watch development in Morocco for reasons of investment and respond to the change in economic activity by adjusting instantaneously the amounts transferred in the same direction.

Thus, while remittances seem to procyclical with respect to Morocco's business cycle, FDI seems to be countercyclical with respect to Morocco's business cycle. For these reasons, remittances flows contribute to reduce poverty by enhancing income level in home country but policy makers can use only FDI flows as a hedge against external shocks. We attribute to workers remittance a development role in comparison with FDI flow witch play jointly a stabilizing a development role.

Regarding repartition of remittances by sending countries for Morocco, it appears clearly that France and Spain received the large part of guest workers from Morocco. Given that, we asses cyclical proprieties of workers remittances in relation with GNI of France and Spain. A positive sign and statistical significant of the contemporaneous correlation coefficients, remittances sent to Morocco appear to move in the same direction as the French and Spanish output- or to be procyclical with host countries. FDI exhibit a procyclical dynamic with GNI of Spain and countercyclical pattern with GNI of France.

Finally, it is also interesting to notice that there is a positive and significant correlation between the cyclical component of host country output and the cyclical component of home country output. This synchronization explains largely the procyclical behaviour of workers remittances. We argued that after an improvement in the host country, migrants are more able to sent money to relatives back home, but the

existing of positive correlation between business cycle in home and host countries suggests that economic conditions in home country may also have improved, discouraging, consequently transfers.

Table3: Error variance decomposition: Tunisia

Horizon	Percentage of the variation in Tunisia's output explained by				Percentage of the variation in RW explained by		Percentage of the variation in FDI explained by		Percentage of the variation in ODA explained by	
	France output	RW	FDI	ODA	France output	Tunisia's output	France output	Tunisia output	France output	Tunisia's output
1	61.95	2.45	26.01	1.33	35.31	9.44	4.86	62.10	7.82	4.16
2	48.20	2.41	18.76	22.39	31.37	8.40	4.19	48.70	8.01	4.12
3	46.42	2.45	19.49	23.27	23.94	8.56	4.54	48.47	8.05	4.14
4	46.31	2.46	19.38	23.49	23.50	8.51	4.58	48.37	8.07	4.14
5	46.26	2.46	19.39	23.52	23.56	8.52	4.58	48.36	8.08	4.14
6	46.25	2.46	19.39	23.52	23.54	8.52	4.58	48.35	8.08	4.14
7	46.25	2.46	19.39	23.52	23.54	8.52	4.58	48.35	8.08	4.14
8	46.25	2.46	19.39	23.52	23.54	8.52	4.58	48.35	8.08	4.14

According to the previous section, the results indicate that the cyclical component of Tunisia and France's output are positively correlated with the cyclical component of remittances. As a result, we conclude that a change in economic condition in home and host countries affect remittances positively. We say that remittances are procyclical with respect to France and Tunisian. This finding still incomplete because correlations do not provide information about causality links between interest variables. Using VAR methodology gives us possibility to control more additional factors.

The first part of table 3 report the fraction of the forecast error variance in the cyclical component of Tunisia's output generated by innovations in the cyclical components of France output, remittances, FDI and ODA. It seem that France output presents the principal driving factor explaining up to 62% of the variance. FDI account for about 19-26% of the variance, ODA explain 22-23% of variance and Remittance impact weakly Tunisia's output.

The second part of table present the portion of the forecast error variance in the cyclical component remittances to Tunisia. We establish that remittances are largely affected by France's output (23-35% of the variance) that economic condition in Tunisia (8-9%of the variance). Given that we affirm that workers remittances to Tunisia depend, largely, to economic conditions in host country.

Concerning variance in FDI is explained up to 62% by Tunisia's output and GDP in France explain just 4% of variance. We say that FDI flows are derived, essentially, by market condition in Tunisia. Finally, about ODA flows, variance decomposition shows that GDP in Tunisia and France affect very weakly ODA.

Table 4: Error variance decomposition: Algeria

Horizon	Percentage of the variation in Algeria's output explained by				Percentage of the variation remittances explained by		Percentage of the variation FDI explained by		Percentage of the variation ODA explained by	
	France output	RW	FDI	ODA	France output	Algeria's output	France output	Algeria's output	France output	Algeria's output
1	7.64	8.44	43.97	27.36	12.01	1.22	3.38	12.83	6.18	9.68
2	11.88	10.99	39.76	25.84	12.54	1.25	4.10	10.74	8.13	10.98
3	14.09	10.76	38.67	25.26	12.73	1.25	4.24	10.68	8.55	10.84
4	14.14	10.75	38.67	25.21	12.74	1.25	4.26	10.69	8.55	10.83
5	14.16	10.75	38.66	25.20	12.74	1.25	4.26	10.70	8.55	10.83
6	14.17	10.75	38.66	25.20	12.74	1.25	4.26	10.70	8.55	10.83
7	14.17	10.75	38.66	25.20	12.74	1.25	4.26	10.70	8.55	10.83
8	14.17	10.75	38.66	25.20	12.74	1.25	4.26	10.70	8.55	10.83

Studying the forecast error variance in the cyclical component of Algeria's output we find that FDI account for 38-43% of the variance and ODA account for about 25-27% of the variance. These results mean that GDP in Algeria is determined basically by FDI and ODA flows. Remittances and France output have a small effect on economic condition in Algeria.

Percentage of the variation in remittances is explained in grand part by France output which implies that workers remittances to Algeria are more sensible to business cycle dynamics in host country (France). Oppositely, Algeria's output constitutes the principal driving factor of variance in FDI flows. Therefore, remittances react to change in economic condition in host country although, FDI act in response to change in economic condition in home country. Finally, GDP in France and Algeria determine, in small part, jointly the dynamics of ODA flows to Algeria.

Table 5: Error variance decomposition: Egypt

Horizon	Percentage of the variation in Egypt's output explained by				Percentage of the variation in RW output explained by		Percentage of the variation in FDI explained by		Percentage of the variation in ODA explained by	
	Saudi output	RW	FDI	ODA	A Saudi output	Egypt's output	Saudi output	Egypt's output	Saudi output	Egypt output
1	1.38	42.35	41.12	11.83	1.62	6.03	0.16	78.41	7.50	4.59
2	1.19	46.98	36.28	12.67	1.58	7.66	0.42	74.88	7.31	6.43
3	1.18	45.70	37.74	12.67	1.59	7.63	0.44	74.92	7.28	6.41
4	1.17	46.56	36.44	12.38	1.59	8.03	0.43	74.33	7.25	6.71
5	1.15	47.04	35.91	12.73	1.58	8.22	0.44	74.03	7.23	6.92
6	1.15	46.92	36.05	12.84	1.58	8.22	0.44	74.04	7.23	6.92
7	1.15	46.97	35.96	12.80	1.58	8.25	0.44	73.99	7.22	6.94
8	1.15	47.03	35.91	12.83	1.58	8.27	0.44	73.96	7.22	6.97

Table 5 explains the variance of Egypt's output. Error variance decomposition of cycle component of GDP Egypt is attributable in large part (more than 90 % of variance) to external financing flows. We observe that FDI account for about 35-41% of the variance in Egypt's output and ODA explain about 12% of the variance. However, remittances appear to be the main determinant factor explaining up to 47% of that variation. According the cyclical proprieties of external flows, we can confirm that Egypt can use remittances, FDI and ODA as stabilizing factors against macroeconomic shocks and fluctuations.

Assessing determinant of remittances to Egypt we observe that output in Egypt and Arabic Saudi are neuter (7-9% of the variance). As results, output in host and home countries does not affect remittances flows which, in consequence, depend on other factors and determinants. Looking at percentage of the forecast error variance in FDI and ODA that is attributable to the cyclical components of Egypt and Arabic Saudi's output. GDP in Egypt explain up 78% of the variance of FDI and 5-7% of the variance of ODA. Arabic Saudi's output account for about 0.4-0.6% of FDI and 74-78% of ODA. Therefore, in terms of the variance decomposition it seems that cyclical fluctuations in home country are having greater effects on the cyclical component of FDI.

Table 6: Error variance decomposition: Turkey

Horizon	Percentage of the variation in Turkey's output explained by				Percentage of the variation in Remittances explained by		Percentage of the variation in FDI explained by		Percentage of the variation in ODA explained by	
	Germany output	Remittances	FDI	ODA	Germany output	Turkey's output	Germany output	Turkey's output	Germany output	Turkey's output
1	37.98	0.23	55.67	3.82	1.02	0.06	2.63	71.81	4.40	0.01
2	37.80	0.23	55.79	3.87	3.68	0.05	13.84	62.49	4.47	0.02
3	37.91	0.23	55.63	3.90	4.00	0.06	14.50	61.88	4.58	0.02
4	37.91	0.23	55.63	3.90	4.03	0.06	14.51	61.86	4.58	0.02
5	37.91	0.23	55.63	3.90	4.03	0.06	14.51	61.86	4.58	0.02
6	37.91	0.23	55.63	3.90	4.03	0.06	14.51	61.86	4.58	0.02
7	37.91	0.23	55.63	3.90	4.03	0.06	14.51	61.86	4.58	0.02
8	37.91	0.23	55.63	3.90	4.03	0.06	14.51	61.86	4.58	0.02

The variance decomposition of Turkish output shown that Germany output and FDI have an important role to explain the forecast error variance of the GDP. Cyclical component of Germany's GNI account for 38% of the variance and FDI flows account for 55% of the variance. This result seems to be coherent regarding the composition of external flows to Turkey where FDI represent the most important source of foreign financing.

Studying the impact of host and home business cycle on remittances flows to Turkey. We conclude likewise Egypt that workers remittances to Turkey depend on other factors than economic condition in Turkey and Germany. Exploring the percentage of forecast error variance in FDI and ODA, GDP in Turkey explain up to 71% of the variance of FDI and GNI in Germany account for about 5% of the variance of ODA. For that reason, business cycle in home country affect, greatly, FDI flows.

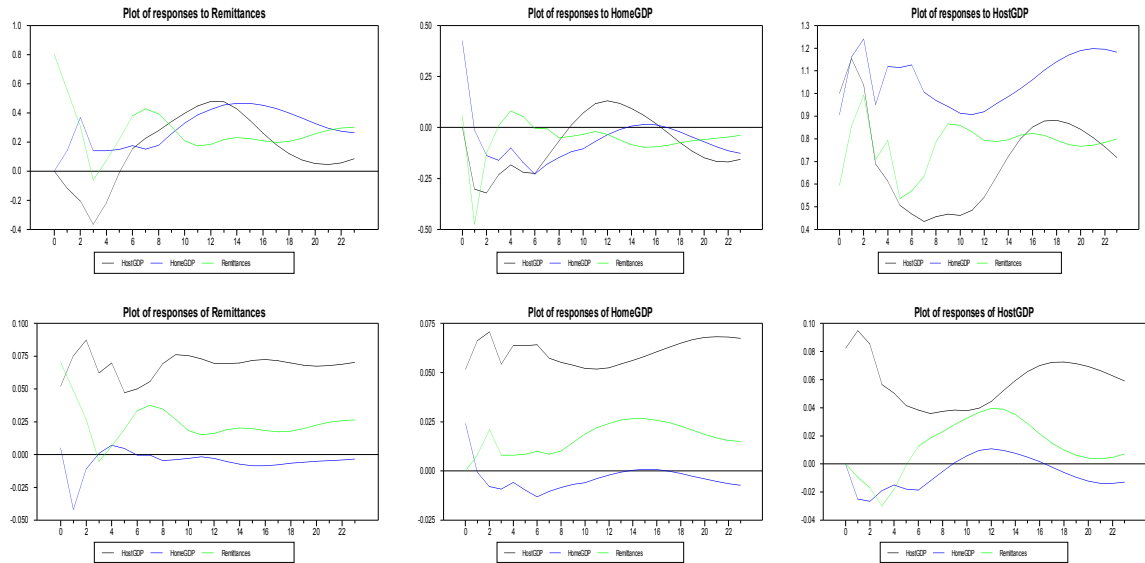
Table7: Error variance decomposition: Morocco

Horizon	Percentage of the variation in Morocco's output explained by					Percentage of the variation in Remittances explained by			Percentage of the variation in FDI explained by			Percentage of the variation in ODA explained by		
	France output	Spain output	WR	FDI	ODA	France output	Spain output	Morocco output	France output	Spain output	Morocco output	France output	Spain output	Morocco output
1	55.83	10.65	3.29	0.50	26.68	28.26	26.07	2.19	21.33	8.01	0.01	11.73	34.12	45.43
2	57.28	9.29	4.73	1.38	26.68	29.97	26.14	1.08	28.21	7.58	0.01	12.84	40.82	38.77
3	55.89	9.05	5.31	2.46	26.05	29.36	26.27	1.09	28.93	8.00	0.01	12.77	41.54	38.22
4	54.85	8.87	5.49	3.57	25.66	29.14	26.17	1.08	29.61	8.08	0.02	12.75	41.64	38.14
5	54.07	8.74	5.51	4.63	25.30	29.01	26.10	1.08	30.05	8.20	0.02	12.75	41.66	38.12
6	53.51	8.66	5.46	5.58	24.92	28.93	26.04	1.08	30.37	8.28	0.02	12.75	41.65	38.12
7	53.06	8.61	5.39	6.39	24.56	28.89	25.98	1.08	30.62	8.35	0.03	12.75	41.65	38.12
8	52.70	8.59	5.33	7.08	24.23	28.86	25.94	1.07	30.80	8.40	0.03	12.75	41.65	38.11

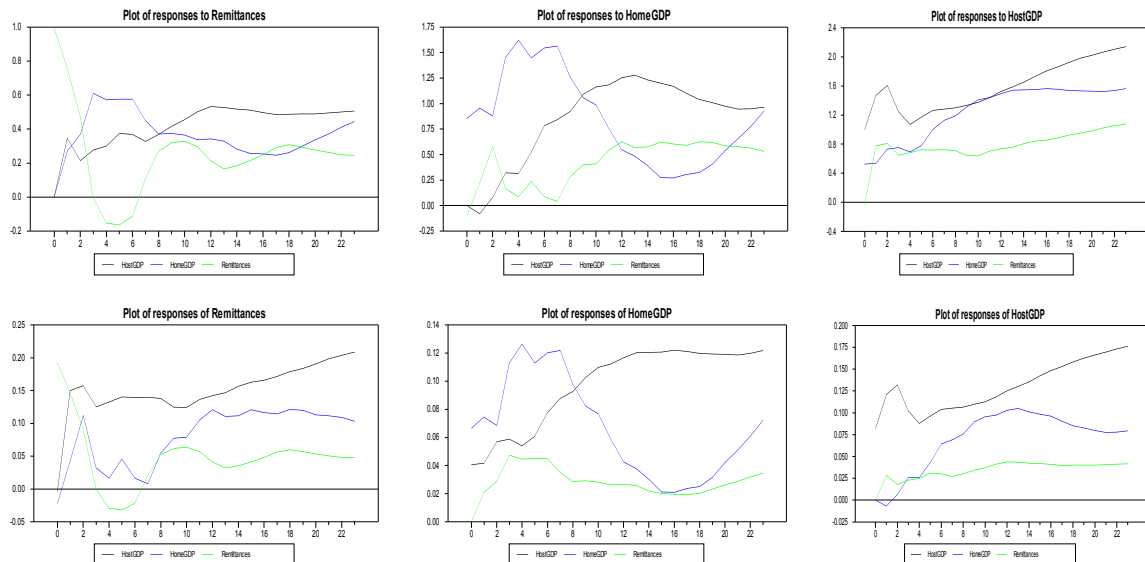
Error variance decomposition of cyclical component of output in Morocco is attributable in great fraction to economic condition in host countries, especially, GNI in France which account for 52-57% of the variance of Morocco's GDP. In other hand, GNI in Spain explains just 8-10% of the variance. Regarding the contribution of external flows, we find that only ODA inflows account for 24-25% of the variance. Remittances and FDI have a limit effects on GDP in Morocco.

Regarding to the portion of the forecast error variance of remittances to Morocco explained by GNI in Spain and France and GDP in Morocco, it seems economic conditions in host countries explain an important share of the variance of remittances. Spain's GNI account for 28-30% of the variance and France's output account for 25-26% of the variance of remittances to Morocco. Percentage of variation in FDI is largely explained by business cycle in France (21% of the variance). On the contrary, ODA flows to Morocco are jointly affected by economic condition in Morocco (38-45% of the variance) and Spain (34-41% of the variance).

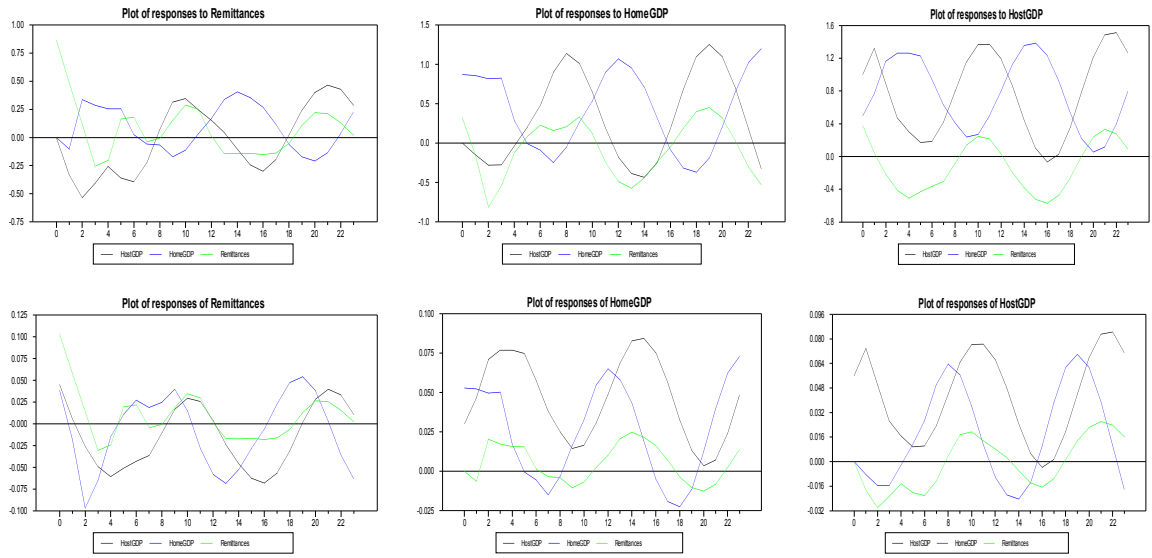
Tunisia: Panel A



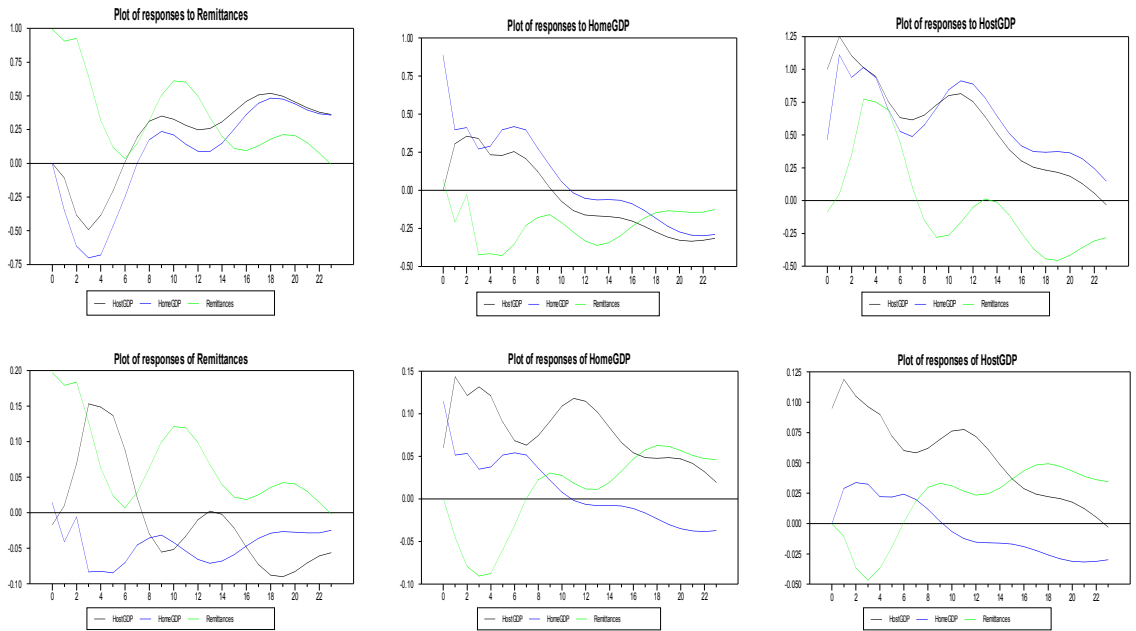
Algeria: Panel B



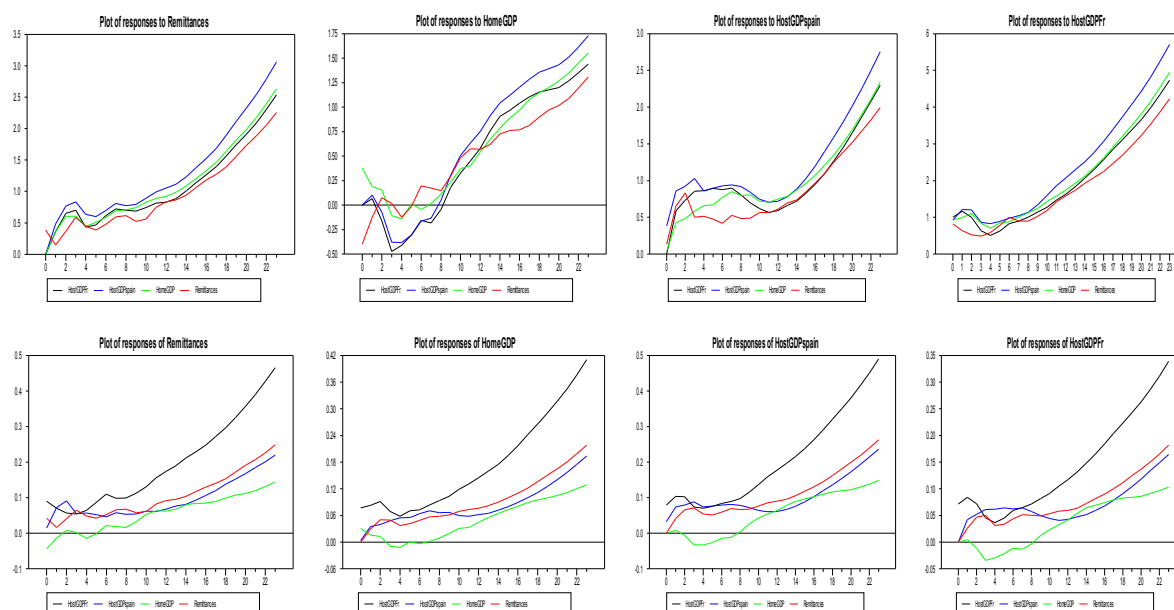
Egypt. : Panel C



Turkey: Panel D



Morocco: Panel E



Panel A reports impulse response functions of Tunisia. It seems that a shock to the cyclical component of GDP in Tunisia has an initial negative effect on remittances during two years. After this period the response of remittances remain very close to the zero line. Given that, workers' remittances to Tunisia react in opposite direction to business cycle in Tunisia during 2 years and theme become acyclical. We, also, observe that a 1% variation in GDP of Tunisia implies a 0.5% variation in worker remittance during the first years. Therefore, we argued that cyclical fluctuation in Tunisian output have a greater effect on the cyclical fluctuation of remittances during the first period. It seems also that shocks to France's output have a positive impact on remittances. According to previous analyses, we interpret that worker remittances to Tunisia are procyclical with business cycle in France. Finally, we find that a shock to remittances has a positive impact on Tunisian GDP.

Observing impulse response functions of Algeria we find a large similarity between the workers' remittances to shocks in Home and Host GDP. It appears that shocks on Algerian and France's output have a positive impact on remittances to Algeria during overall the period. This result confirms the assumption that investment motives drive the decision to remit in Algeria. Likewise Tunisia we find that shocks to remittances has a positive impact on home GDP during all the period of estimation.

Concerning Egypt case we find results witch are differently from previous findings. Panel C reports that response of cyclical components of remittances to shocks on home and host GDP. Figures illustrate that the responses of workers' remittances exhibit a fluctuant dynamics. In others words, shocks on Arabic Saudi and Egyptian output have a jointly positive and negative impacts. Finally it seems that a shock to remittances has positive effects on Algerian GDP in first period.

Panel D reports impulse response functions of Turkey. It seems that a shock to cyclical components of GDP in Turkey has a negative effect on remittances. Provided that workers' remittances to Turkey reacts countercyclically with business cycle in Turkey. It seems also that a shock to German's output has an initial positive effect on remittances during 6 years. Untimely, shock on remittances has negative effect on Turkish GDP during 7 years. After this period the effect becomes positive.

Observing impulse response functions of Morocco, cyclical components of workers remittances react positively after a positive shock affecting home GDP expect during the period from 2-5 years. Furthermore, the cyclical components of workers' remittances respond positively to shocks to cyclical component of Spain and French output. At least, we find that a shock to remittances has a positive impact on GDP of Morocco. On other words, workers remittances have a positive effect on output in Home country.

Conclusion

In this paper we search to asses and to find the business cycle proprieties of workers' remittances to Southern Mediterranean countries. Moreover, we established a comparison between the cyclical proprieties of remittances and cyclical proprieties of FDI and ODA flows for each country. The eminent objective of this work is to find a quantitative framework witch able us to provide stylized fact of workers remittances in Algeria, Egypt, Morocco, Tunisia and Turkey.

To illustrate business cycle features of workers remittances we utilize a correlation simple correlation between cyclical components of interest series. We conclude that remittances in Algeria, Egypt and Morocco are countercyclical with respect to home GDP. In opposite workers remittances to Tunisia and Turkey drive in opposite direction with respect to business cycle in home country. Given that we conclude that decisions to remit are dominate by altruistic motive in Tunisia and Turkey, in opposition investment motive drive the decision to remit in the case of Algeria, Egypt and Morocco.

Regarding variance decomposition of Forecast Error, we demonstrate that fluctuation in host GDP explicate a large part of the forecast error variance in the cyclical components of remittances for Tunisia, Algeria, and Morocco. We show that Egyptian GDP explain a significant portion of the variance of remittances in Egypt. On the topic of the decomposition of variance of Home GDP, we find a lack of explaining power of cyclical components of remittances except Egypt for witch worker remittances account for about 43% of the variance of GDP.

In conclusion, we can say that Southern Mediterranean Countries present some difference concerning cyclical proprieties of workers remittances. In general, remittances flows represent the major external finding to these countries outmatching FDI and ODA. Nevertheless, workers remittances are countercyclical with business cycle in Algeria, Egypt and Morocco; in opposite remittances flows are procyclical with GDP in Tunisia and Turkey. This findings implies that it not exist a common characteristics of workers remittances in developing countries, especially, in Mediterranean countries providing evidence that Mediterranean workers abroad take into account many criterions to send money to their home back families.

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