Remittances, Economic Growth, Exchange Rate Regime: The Case of Morocco

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Abstract

This paper examines the effects of remittances on the Moroccan economic growth and their implications for economic policy choices, with particular attention to those relating to the exchange rate regime. In order to verify the link between remittances and development in Morocco, the study employs a VAR approach and variance decompositions analysis. Its result is that, for Morocco, the remittances have been a fundamental engine of economic growth, pro-cyclic and constant in time. *This conclusion implies that the role of remittances in the Moroccan economic development must be ever present in economic policy decisions and, especially, in the exchange rate policy.* In the opinion of authors, for a country, such as Morocco, characterized by strong migration outflows, directed mainly towards euro area, and by significant remittance inflows in the currency of the same area, the best exchange rate system is a basket peg, whose composition reflects not only the direction of trade and financial flows, but also those of migration flows and remittances.

Keywords: Morocco, economic growth, economic cycle, remittances, exchange rate system, basket peg, VAR.

JEL Classification: C3, 01, F3, F22

Introduction

In the last two decades the remittances have become an important source of external financing in developing countries, overcoming other conventional sources of capital, in particular aid and portfolio investment.

This phenomenon has given rise to an extensive literature on remittances, tending to analyze their effects on the developing economies. Although it is generally accepted that remittances are an important means of improving the living conditions of families of the poorest countries in the world, there is disagreement on the evaluation of their macroeconomic effects. Along side studies that emphasize the positive impact of remittances, there are those that highlight their possible negative consequences. Generally, the results of the ones seem a denial of those of the others. This does not allow to reach generalizable conclusions. Indeed, the impact of remittances on growth on the receiving countries depends on their specificities, as: the structural characteristics, the relevance of the migration phenomenon, the level of development reached, the trade openness, the exchange rate regimes, etc. As
such, the effects of remittances should be considered with reference to the characteristics of individual countries.

Accordingly to this belief, we consider the case of Morocco. The relevance of its migration outflows, and that of the related remittance inflows, explain this choice, making it an interesting study case to examine the impact of remittances on growth.

On this premise, our paper, after a preliminary literature review on the remittance effects and a brief survey of the Moroccan migration phenomenon, will focus on the short and long-term economic consequences of remittances and their implications for economic policy choices, with particular attention to those relating to the exchange rate regime.

At present, Morocco adopts a basket peg exchange rate system, with a high euro incidence in the basket (80%). However, it is widely believed that a flexible exchange rates system is more suited to the current needs of Morocco and, in fact, its government is planning to move towards a rate currency more flexible in the short term.

Our study conclusion is that the aforesaid choice requires a more careful assessment, considering that Morocco is a country of large migration outflows towards the EMU area and that remittances significantly influence its growth. Studies and discussions concerning the best Moroccan exchange rate regime overlook these considerations. Generally, they consider the close trade relations existing between Morocco and the euro area, neglecting the importance of remittances for the Moroccan economy and the fact that about 68% of them come from the euro zone.

2. Literature Review

Although it is generally acknowledged that remittances are an important means of improving the living conditions of families of the migrants, literature is divided in assessing their effects on the short and long term economic development.

With regard to the short-term effects, the main differences depend on the different position of the economists about the determinant of remittances. Pioneer Lucas and Stark study (1985), conducted with reference to Botswana, identified two main and opposite reasons: pure altruism and pure self-interest. In the former case, the remittances are justified by the migrants’ desire to improve the living conditions of families left behind and to alleviate their economic hardship. In the second one, they are motivated by self-interest of migrants, often directed to carry out investments in real estate or small businesses, also in view of their return to home. In this last case, it is also possible to speak of attachment to homeland. An intermediate situation between pure altruism and self-interest consists in enlightened self-interest. This model considers the relationship between the migrant and his family as a sort of implicit contractual agreement, where the emigration is a Pareto efficient situation and remittances are a mechanism to distribute their benefits. The model has been declined in different versions. In particular, Stark (1991), Townsend (1994) Agarwal and Horowitz (2002), Gubert (2002) have suggested a version that considers the family as an insurance company, which protects its members against the risk of income variability and diversifies its sources; Poirine (1997), Ilahi and Jafarey (1999) have regarded the family as a bank that finances the emigration of one of its members in the interest of the whole family nucleus.

The different microeconomic explanations of the remittance motivations have originated two opposite positions on their effects on the receiving country economic cycle.

Those who believe that the pure altruism and the enlightened self-interest are the main determinant of remittances also believe that monetary transfers have an anti-cyclical pattern, with positive effects on the GDP volatility and the cycle stabilization (Agarwal and Horowitz, 2002; Osili, 2007). In fact, if the primary motivation of remittances is to cope with the family needs, they can increase in crisis time, unlike other forms of capital movements that are motivated by the search for economic yield. Moreover, the fact that the tendency to emigrate increases during crises could strengthen the anti-cyclical effect (Yang and Choi, 2007).
Several empirical studies confirm the existence of a direct relationship between the worsening economic conditions in the developing countries and the increase of remittances. Chami, Fullenkamp, Jahjah (2005), with reference to a panel consisting of 113 countries and a time series with 29 years (1970-1998), have verified the existence of a negative p-value and statistically significant relationship between GDP and remittances. The World Bank (2006), Bouhga-Hagbe (2006), Frankel (2011), Singh, Haacker, Lee, Le Goff (2011) have reached similar results. Other studies have shown that remittances reduce the GDP volatility (Bugamelli and Paterno, 2011; Chami, Hakura and Montiel, 2012) and that they increase after natural disasters (Yang and Choi, 2007; Yang, 2008 Ebeke and Combes, 2013) or as a result of the terms of trade (Bettin, Presbiterio, Spatafora, 2014).

However, the aforesaid results are contradicted by the supporters of the self interest approach. In their opinion, remittances increase in the expansionary phase of the cycle, because the more optimistic prospects for economic results, characterizing these phases, stimulate migrants, moved by personal interest and attachment to homeland to invest in their countries. The consequence is that remittances have a pro-cyclical trend (Giuliano, Ruiz-Aranz, 2009). In other words they increase in good times and decrease in those adverse. In this way, they have a destabilizing effect, deepening the cyclical phases.

The relevance of the pure altruism approach is also contradicted by another approach, portfolio approach, which considers remittances as capital movements, regardless of family considerations (Wahba, 1991; Gordon, Gupta, 2004). For this approach, remittances are resulting from the choice of the migrant to invest his savings in the origin country rather than in the host, on the basis of consideration of some variables, such as: the yield spreads between alternatives, but comparable, forms of investment in the two countries; inflation rates; the macroeconomic and political stability; the degree of origin country economic development; expectations, etc. It follows that remittances are not stable as required by altruistic approach, but they are as volatile as other capital flows and with a possible pro-cyclical impact on the GDP of the migrant country (Sayan, 2006; Lueth, Ruiz-Arranz, 2008; Giuliano, Ruiz-Arranz, 2009; Cooray, Mallick, 2013).

The literature positions are different also with regard to the remittance effects on long-term growth of the receiving countries.

A part of it emphasizes the positive impact of the monetary transfers of migrant on the main macroeconomic variables influencing the growth process. Several studies consider their positive impact on consumption and, through them, on the processes of income multiplication, the enlargement of the markets, the expectations of economic agents and, then, on investment (Glytsos, 2002; Ratha 2003; Orozco 2004; Zarate-Hoyos, 2004; Kapur, 2005; Wahaba, 2005; Zhu, 2006). Other studies emphasize, instead, the positive effects of remittances on capital formation. Specifically, they provide new means to finance investment (Giuliano, Ruiz-Arranz, 2009; Wahaba, 2005) and increase bank liquidity, reducing interest rates and providing easier access to credit. (Gupta, Patillo, Wagh, 2009). Furthermore, if they stabilize the business cycle, this would reduce the risk of firms to invest and that of banks to lend, with positive consequences for the physical capital formation (Barajas, Chami, Fullenkamp, Gapen, Montiel, 2009).

The optimistic view of remittance effects also includes studies emphasizing their positive impact on the human capital formation, with important implications on total factor productivity. In this regard, several contributions have verified the positive consequences of remittances on school attendance and education expenditure: Yang (2008), with regards to Filippine; Mansuri (2007), in Pakistan; Calero, Bedi, Sparrow (2009), in Equador; Acosta, Fajnzylber and Humberto (2007), in a dataset of 11 Latin American countries. The positive repercussions of remittances are observed, finally, on the balance of payments, where they mitigate the chronic deficits of the developing countries, improving current account and freeing resources that the state can use for long-term development policies. In this context, remittances are regarded as an exchange between unskilled labor, abundant in developing countries, and foreign currencies, poor in the same (Glytsos, 2002).

Overall, a large part of the economic literature comes to a positive assessment of the remittance macroeconomic effects on growth. They stimulate consumption and widen markets; favor the
formation of the physical and human capital; facilitate the expansion of the credit system; improve the balance of payments and increase the effectiveness of public action.

These positive results, however, are not discounted for another large part of the literature, which tends to emphasize the possible negative impact of remittances.

For some economists, monetary transfers can promote dependency syndromes and moral hazard on the part of families that benefit from them and the State. The first, in fact, might reduce their participation in the production process, substituting, especially if remittances are considered permanent, the labor income with currency inflow arising from remittances (Amjad, 1986; Ahmed, 1986; Itzigsohn, 1995; Glytsos, 2002; Chami, Fullenkamp, Jahjah, 2005). State, on the other hand, relying on remittances as a source of revenue, could reduce its incentive to pursue reforms and investments, necessary for the real growth of the economy and the balance of payments adjustment. In this regard, a study of Abdih, Chami, Dagher, Montiel (2008) shows that remittances may adversely affect the quality of the institutions in the receiving countries. In fact, they could increase the government propensity to rise the tax burden and to employ greater resources to inefficient and unproductive expenses.

A significant literature also doubts that remittances may stimulate investment and, then, the receiving countries growth. It is observed, in fact, that these effects depend on the family propensity to consume and save and there is a level of income below which remittances are mainly used to increase consumption. On the empirical level, several studies have found that in most underdeveloped countries remittances have financed consumption and, at best, have encouraged the purchase of land and houses (Glytsos, 1993; Julian Ruiz-Arranz, 2005 Massey, Parrado, 1994). Regarding the positive effects of remittances on the banking system and, consequently, on investment, it is observed that they do not always translate into greater bank liquidity and a consequent credit expansion at more favorable conditions for investment. Indeed, in developing countries, a larger and stronger banking system could encourage the formation of lobbies that favor its concentration and the constitution of safe assets, rather than riskier loans, which are more productive for the growth of the real economy (Barajas, Chami, Fullenkamp, Gapen, Montiel, 2009).

Part of the literature considers uncertain also the effects of remittances on human capital formation and, consequently, on growth. It is believed that they will be positive only if people, who benefit from higher education, will enter effectively in the labor market. In fact, it is also possible that more education incentives the emigration (Barajas, Chami, Fullenkamp, Gapen, Montiel, 2009).

The list of critics extends considering the effects of remittances on the participation of Moroccans in the labor market and those relating an open economy. With reference to the first, it is observed that remittances may adversely affect the long term growth because they reduce the labor force participation in the production process (Kozel and Alderman, 1990; Itzigsohn, 1995). With reference to the second, some studies signal the possible adverse effects arising from the relationship between exchange rates and remittances. Indeed, on the one hand, changes in exchange rates influence the monetary value expressed in national currency of remittances, by affecting the investment choices and consumption of migrants and their families; on the other hand, monetary transfers could cause an appreciation of the real exchange rate, with a negative impact on the competitiveness of domestic production and on the balance of payments (Amuedo-Dorantes, Pozo, 2004; Montiel, 2006; Bourde Falck, 2006; Loser, Lockwood, Minston, Balcazar 2006; Acosta, Lartey, Mandelman, 2007).

In conclusion, there are different views on the contribution of remittances to the receiving countries growth. It, therefore, cannot be generalized: the ultimate impact depends on the specific characteristics of individual countries. Starting from this premise, our study will focus on the case of Morocco. In fact, this country, represents an interesting study case, because it is the place of origin of large migration flows and the place of destination of large inflows of remittances.
3. Migration Flows and the Relevance of Remittances for the Moroccan Economy

Morocco is one of the main countries of migration outflows. In 2013 the total number of Moroccon expatriates exceeded 2.871 million people, constituting approximately 8.7% of the population (United Nations, 2013). This characteristic makes Morocco an important destination country of remittances. In fact, in the Middle East and North Africa region (MENA), it ranks third, after Egypt and Lebanon, for the amount of monetary transfers received by migrants (World Bank, 2014). As shown in Fig. 1, in the 1990 - 2012 period, remittance flows increased six fold, from 1.3 to about 7.3 billion dollars. In addition, they have significantly exceeded the other main sources of foreign currency, in particular international aid and foreign direct investment.

Figure 1: Flows of foreign direct investment, remittance and aid (Thousands of dollars)

For their relevance, remittances have been an essential component of GDP and Morocco’ balance of payments. As we can observe from Fig. 2, in the 2010-2014 period their average annual impact on GDP was 8.7%. In the same period they have ensured an average annual inflow of foreign currency equivalent to 46% of that resulting from exports and above 20% of the total revenue arising from the current account of balance of payments. Furthermore, they contribute to over 26% of total deposits of the banking system (Hassan II Foundation, 2005). These data suggest that remittances have played a key role in the short and long term growth of the Moroccan economy. The next two paragraphs are destined to verify this role.

Figure 2: Incidence of remittances on GDP, exports and current revenues of the balance of payments (percentage values)

Source: Office de Change, Balance des Paiements, Royaume du Morocco

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1 Data on remittances differ from those of the World Bank because they include, in addition to workers' remittances, other minor current transfers, such as pensions, gifts, private aid.
4. Remittances and Economic Cycle

A Sayan’s study (2006) has analyzed the business cycle properties of real remittances against the behavior of real output in the 12 selected recipient countries, using annual data between 1976 and 2003 and employing a polynomial filter. With reference to Morocco, it finds that there is a positive correlation between the two series, with a coefficient of 38% and a delay of a year. This result seems to exclude, in Moroccan experience, the positive effect of cycle stabilization that those who support the pure altruism approach attributes to remittances.

Our study confirms this result with reference to the widest period 1980-2013. Unlike Sayan, we have considered a dataset with quarterly data and, in order to separate the cyclical component from the trend, we have applied the Hodrick-Prescott filter to historical series of GDP and remittances, taken at constant prices and in logarithmic scale. The data source is Datastream. The correlation analysis of the filtered values, relative to 134 data, shows a positive coefficient of 37%. This confirms that, in the Moroccan experience, the remittances are pro-cyclical.

This result seems to show that other reasons have prevailed over pure altruism in the dynamics of remittances, such as the influence of cyclical trends of the main origin countries of transfers and the prevalence of the motivations of self-interest and attachment to homeland.

The influence of the first reason seems plausible on the basis of correlation, in the 1980-2013 period, between the time series of remittances sent by the countries of origin of the largest flows (Spain, France, Italy) and those of their GDP. In this regard, it should be noted that 88% of Moroccan migrants is concentrated in the euro area, and especially in France (37%), Spain (29%) and Italy (17%) (United Nations, 2013). In particular, the correlation analysis between remittances and GDP - carried out on quarterly data, at constant prices, filtered values and in logarithmic scale - shows the existence of three positive coefficients with reference to all three countries: 61% (France); 77% (Spain); 58% (Italy) (see Tab. 1).

<table>
<thead>
<tr>
<th></th>
<th>hp_l_Fra_GDP</th>
<th>hp_l_Spa_GDP</th>
<th>hp_l_Ita_GDP</th>
<th>hp_l_Remitt</th>
</tr>
</thead>
<tbody>
<tr>
<td>hp_l_Fra_GDP</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>hp_l_Spa_GDP</td>
<td>0.4012</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hp_l_Ita_GDP</td>
<td>0.3114</td>
<td>0.8659</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>hp_l_Remitt</td>
<td>0.6092</td>
<td>0.7721</td>
<td>0.5792</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Datastream, 2014

The prevalence of the motivations of self-interest and attachment to homeland, as determinants of remittances, could be another important explanation of their pro-cyclical pattern.

The relevance of these reasons is also supported by the results of a survey conducted by the Hassan II Foundation on the use of the transfers of Moroccans living abroad (2008). The survey shows that 70.95% of money transfers has been used for current expenses of the migrant and his family; 7.71% for investment; 20.90% for deposits. Therefore, the expenses for the current needs have absorbed more than seven tenths of remittances, leaving less than 8% of them for investment.

However, it is possible to draw other interesting indications by examining the distribution of current expenses. In fact, we can see that over 64% of them has been used for needs of the migrant and his cohabiting during their stay in Morocco; 19% for those of his family during the remaining year and only 15.6% for those of the extended family not belonging to migrant ménage. This distribution, therefore, seems to confirm that the self-interest is the primary motivation determinant of the Moroccan transfers.

Finally, a further important conclusion comes from the examination of the remittances distribution with respect to direct investments. Although they absorb only 7.06% of money transfers, the survey conducted by the Hassan II Foundation shows that, in 2005, approximately: 52.7% of Moroccans abroad had made an investment in Morocco; over 86% of direct investments have been
concentrated in real estate; three quarters of them have been oriented towards the regions of origin of migrants.

All these data show that the attachment to the homeland is an important determinant of remittances in Morocco. Bouhga-Hagbe (2004) has confirmed this conclusion in econometric terms, employing co-integration techniques and founding that there is a positive correlation between remittances and the value added of the construction sector.

Thus, the prevalence of motivation different from that of altruism helps to explain the procyclical behavior of remittances in Morocco. However, if this conclusion leads to exclude the stabilizing effect of remittances on the cycle, it does not exclude their significant influence on long-term growth of the country.

5. Remittances and Economic Development: An Empirical Analysis

The contribution of remittances to Morocco economic growth is considered critically by several economists, despite their high impact on the main macroeconomic variables of the country. A large part of the criticism focuses on the fact that remittances are mainly used for consumption, neglecting productive investment and, particularly, those able to create employment (Mezdour, 1993; Kagermeier, 1997; Fadloullah, Berrada, Kachani, 2000).

However, this position seems contradicted by the intense growth recorded by the Moroccan economy in the last thirty years. As shown in Fig. 3, it has been affected by a positive trend, which has increased since the end of the first half of the nineties. Remittances have undoubtedly contributed to this positive trend. In this regard, it is significant that they have experienced a substantial increase from the same date on which it is observed the trend acceleration. However, in order to verify the link between remittances and development in Morocco, it is useful a closer analysis, based on more precise empirical basis.

\[ \text{Figure 3: Trend of Morocco GDP growth, 1980-2013}^* \]

\[ \text{\textbullet Our calculation on data Datastream, considered at constant prices and in logarithmic scale.} \]

Our model employs eight-variables in a Vector Auto-Regression methodology and with a Variance decomposition. In particular, it considers monthly data (1980-2014) by Datastream, 2014, constant prices ($2005) and a single country, Morocco. We use, as the values for reading VAR results, a numbers combinations ranging from 1 to 8: (1) GDP per capita, following Solow’ theory; (2) labor force growth; (3) real effective exchange rate; (4) general government structural balance, as a indicator of the fiscal policy impact on economic growth; (5) capital growth; (6) trade balance; (7) gross secondary school enrolment rate, as a proxy for human capital; (8) remittance.

Before estimating VAR, it is appropriate to carry out the Dickey-Fuller test prefixed to 12 delays, necessary to test the historical series stationary of the eight variables in the model, also on
the basis of the correlogram analysis. This shows that the process is not stationary (appendix 1). So, we can transform the eight variables in logarithms and logarithmic difference.

Table 2: Exploratory data analyses

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>IQR</th>
<th>10-Trim</th>
<th>Pseudo SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>d_l_GDP-pr</td>
<td>8.5261</td>
<td>1.4325</td>
<td>4.9632</td>
<td>10.9648</td>
<td>2.698</td>
<td>8.264</td>
<td>1.596</td>
</tr>
<tr>
<td>d_l_LbForce</td>
<td>0.5866</td>
<td>1.4289</td>
<td>1.9025</td>
<td>4.2587</td>
<td>1.493</td>
<td>0.564</td>
<td>1.254</td>
</tr>
<tr>
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<td>1.0963</td>
<td>5.7025</td>
<td>9.2937</td>
<td>2.962</td>
<td>7.179</td>
<td>1.596</td>
</tr>
<tr>
<td>d_l_Trade</td>
<td>7.2649</td>
<td>1.3895</td>
<td>4.1258</td>
<td>6.7812</td>
<td>1.784</td>
<td>7.054</td>
<td>1.785</td>
</tr>
<tr>
<td>d_l_kform</td>
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<td>1.6875</td>
<td>1.9854</td>
<td>4.2454</td>
<td>2.054</td>
<td>4.156</td>
<td>1.665</td>
</tr>
<tr>
<td>d_l_remitt</td>
<td>6.9156</td>
<td>1.0896</td>
<td>1.2078</td>
<td>4.2457</td>
<td>2.074</td>
<td>6.752</td>
<td>1.248</td>
</tr>
</tbody>
</table>

Table 2 reports the summary statistics for the overall sample and we can see the Mean value of all variables is positive. We can also observe that for each variable the 10-Trim values are near to the mean, as well as the Standard Deviation to the Pseudo Standard Deviation. Moreover, the Inter-Quartile Range (IQR) shows the absence of outliers in the observed sample.

Before carrying out about VAR analysis, we have developed the first correlation between the variables object of our study (tab.3).

Table 3: Correlation matrix

<table>
<thead>
<tr>
<th></th>
<th>d_l_GDP-pr</th>
<th>d_l_LbForce</th>
<th>d_l_Exch_rate</th>
<th>d_l_Publ.Ex</th>
<th>d_l_K</th>
<th>d_l_Trade</th>
<th>d_l_kform</th>
<th>d_l_remitt</th>
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<td>0.7160</td>
<td>0.8025</td>
<td>0.7785</td>
<td>0.7468</td>
<td>0.7037</td>
<td>0.7340</td>
<td>0.8309</td>
</tr>
<tr>
<td>d_l_LbForce</td>
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<td>1</td>
<td>0.9025</td>
<td>0.9405</td>
<td>0.9015</td>
<td>0.8498</td>
<td>0.7589</td>
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<td>0.7557</td>
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<td>0.7037</td>
<td>0.7340</td>
<td>0.8309</td>
</tr>
<tr>
<td>d_l_K</td>
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<td>0.1801</td>
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<td>1</td>
<td>0.5092</td>
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<td>d_l_Trade</td>
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<td>0.7557</td>
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<td>0.9335</td>
<td>0.8745</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

As shown in Table 3, the exchange rate, remittances, public expenditure, trade and capital formation are strongly correlated, particularly with regard to the pair remittances and K, remittances and labor force, remittances and general government structural balance. In fact, the correlation coefficients exceed 0.90 and these pair-wise correlations are significant at 1% level.

This analysis confirms the presence of a strong correlation between the variables choices. This result allows us to verify with a VAR the macro-economic long term effects.

5.1 VAR Results

Our analysis proceeds investigating the causal relationship between eight variables with a VAR and 2 delay. In Table 4, we report the results of the model with eight variables.
Table 4: Main results of a 8-variables VAR model

<table>
<thead>
<tr>
<th>[dep/ind]</th>
<th>Coeff.</th>
<th>Std.Err.</th>
<th>p-value</th>
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<td>c [1;1]</td>
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<td>0.01160</td>
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<td>0.0000***</td>
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<td>c [8;1]</td>
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<td>0.02260</td>
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<tr>
<td>c [2;2]</td>
<td>0.012616</td>
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<td>4.51e-01***</td>
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<td>c [3;3]</td>
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<tr>
<td>c [4;3]</td>
<td>-0.06075</td>
<td>0.01032</td>
<td>4.02e-01***</td>
</tr>
<tr>
<td>c [8;3]</td>
<td>-0.07855</td>
<td>0.01984</td>
<td>7.53e-05***</td>
</tr>
<tr>
<td>c [4;4]</td>
<td>0.04091</td>
<td>0.00503</td>
<td>4.51e-01***</td>
</tr>
<tr>
<td>c [5;5]</td>
<td>0.067287</td>
<td>0.00827</td>
<td>4.51e-01***</td>
</tr>
<tr>
<td>c [6;5]</td>
<td>0.02668</td>
<td>0.01202</td>
<td>0.0265**</td>
</tr>
<tr>
<td>c [7;5]</td>
<td>0.04304</td>
<td>0.01001</td>
<td>1.72e-05***</td>
</tr>
<tr>
<td>c [8;6]</td>
<td>0.042404</td>
<td>0.01604</td>
<td>0.0082***</td>
</tr>
<tr>
<td>c [7;7]</td>
<td>0.048315</td>
<td>0.00594</td>
<td>4.51e-01***</td>
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<td>c [8;8]</td>
<td>0.086875</td>
<td>0.01069</td>
<td>4.51e-01***</td>
</tr>
</tbody>
</table>

Note: * Significant on the 10% level; ** Significant on the 5% level; *** Significant on the 1% level;

The diagnostic tests estimated on the VAR model show the absence of autocorrelation problems of the residuals for both delays, while the significativity of variables about any delay is confirmed by the Wald statistic, with the exception of last delay, when we consider the model as a whole. In addition, also further tests (…) suggest that all general problems in the VAR estimate are been satisfied. In particular, the stability conditions, both based on the calculation of the Eigen-values that are less than unity and on inspection graphics of the cumulative sum of the residues calculated recursively.

As we can see, unless for the causal relationship of each variable with itself, all the variables were significant at 1%, except for trade (6) with the growth of capital (5) that are significant at 5%.

The results can be read as follows: remittances influence growth through a one-way system with a value regressor of 0.90, representing the highest value among all coefficients. Using partial quadratic co-efficients we can assert that economic growth is influenced for 84% by remittance regressor.

A further interesting result derives from the analysis: remittances have a weak link or nonexistent with the other variables relevant for the growth development theories. This suggests that, in the Morocco case, the relationship between remittances and development is more direct than suggested by the theory. In particular, remittances do not explain the accumulation of real capital and explains only weakly trade balance (0.04) and the real exchange rate (-0.07). The first result confirms empirically the conclusion already reached by the survey of the Hassan II Foundation on the use of remittances. The second, can be justified by exchange rate regime, adopted by Morocco: a basket peg system.

We can conclude that there is a very strong long-term link between remittances and economic growth. This conclusion finds a further confirmation in impulse-responses analysis (Fig. 1).
Starting from a stationary VAR, we define its response function to an exogenous shock on the GDP growth or remittance growth as:

\[ h(i,j,n) \text{ remittance} = (y_{n})_{i,j} = \delta y_{it} \delta \varepsilon_{jt}, \]

where \( y \) is GDP growth in time \( t \), \( j \) represents an exogenous shock for \( n \) times, \( \delta \varepsilon_{jt} \) is the result of shock in a generic VAR model.

The above equation can be interpreted as the response of \( i \)-th \( \{h(i,j,n)\} \) variable to the \( j \)-th shock on remittance after \( n \) periods. In particular, figure 1 shows a clear correlation in VAR nexus between the variables under study. Against one exogenous shock, we can see clearly that both GDP and remittances suffer a sharp collapse. However, the figure also shows how remittances register a value of -0.01 of recovery prior to of GDP, showing an pro-cyclical effect.

We decompose the variance in order to verify that delays have not affected the results (Table 5).

**Table 5:** Variance decompositions

<table>
<thead>
<tr>
<th>10 period ahead</th>
<th>( d_{1, \text{Remitt}} )</th>
<th>( d_{1, \text{GDP-pr}} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( d_{1, \text{Remitt}} )</td>
<td>0.6215</td>
<td>0.4564</td>
</tr>
<tr>
<td>( d_{1, \text{GDP-pr}} )</td>
<td>0.2563</td>
<td>0.6036</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>20 period ahead</th>
<th>( d_{1, \text{Remitt}} )</th>
<th>( d_{1, \text{GDP-pr}} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( d_{1, \text{Remitt}} )</td>
<td>0.4997</td>
<td>0.3958</td>
</tr>
<tr>
<td>( d_{1, \text{GDP-pr}} )</td>
<td>0.3523</td>
<td>0.6060</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>30 period ahead</th>
<th>( d_{1, \text{Remitt}} )</th>
<th>( d_{1, \text{GDP-pr}} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( d_{1, \text{Remitt}} )</td>
<td>0.4584</td>
<td>0.3825</td>
</tr>
<tr>
<td>( d_{1, \text{GDP-pr}} )</td>
<td>0.2306</td>
<td>0.6625</td>
</tr>
</tbody>
</table>

The variance decompositions are in line with previous findings. In fact, the remittances explain nearby 46% GDP per capita variation of in 10 periods ahead. It is noteworthy that the effect of the remittances on GDP per capita growth remains constant over time. The values in 20 and 30 period ahead remain very high. In fact, in an average period of the order about 20 ahead the loss of the remittance influence on GDP per capita growth, it is near to an elasticity value of -0.7. This result is a further proof that the remittances have been, for Morocco, an engine of economic growth, pro-cyclic and constant in time.
6. The Exchange Rate Regime of Morocco

The great importance that remittances have for the Moroccan economy requires that they have a fundamental consideration in the policy choices of the country, favoring their easy and efficient use. In fact, over 61% of those who have invested in Morocco have denounced the existence of several problems: bureaucratic; absence of adequate information and technical support; forms of corruption; inadequate access to credit (Foundation Hassan II, 2008).

However, in order to fully benefit from the many advantages of remittances it is also essential a policy ensuring the stability of their value in national currency. The value in dirham is, in fact, the relevant one for the investment choices and consumption of migrants and their families.

From its independence until 1973, Morocco has adopted a system of fixed exchange rates, pegging the dirham to the French franc. However, from May 1973, after the collapse of Bretton Woods system, the Moroccan monetary authorities have replaced the exclusive link with the French currency with a basket peg of eight currencies. The basket composition has been changed over time, in order to adapt it to the structure of foreign trade of the country. In particular, during the nineties the weight of European currencies in the basket has been growing; while that the dollar has been declining. Finally, in April 2001, the basket composition was limited to the dollar and the euro with the respective weights of 20% and 80%.

This choice was mainly driven by considerations relating to narrow economic and financial relations existing between Morocco and the euro area.

In fact, it cannot be ignored that, even today, despite the EMU economic slowdown, about 70% of Moroccan foreign debt is in euro and the euro area is its main partners for foreign direct investment and foreign trade. Indeed, 52% of FDI towards Morocco originates from the euro-zone, with the strong presence of French (38.2%). Similarly, 43% of Moroccan imports comes from EMU; while 52% of exports is directed towards it (Offices des Changes, 2013).

During the new millennium, the basket peg system, adopted by Morocco, has assured: exchange rate stability, reducing the currency risks for traders and foreign investors; non-inflationary trend in prices; the economic growth and a significant reduction of GDP volatility (IMF, 2014).

However, with the spreading of US financial crisis around the world and, especially, in Europe, the virtuous process of Moroccan economic growth has registered a slowdown. In fact, the crisis, reducing the GDP growth rates of foreign partners, has led to a substantial decline in foreign currency flows from tourism, remittances, investments and exports. The consequence has been an abrupt deterioration of the current account of balance of payments and a decline in foreign exchange reserves.

These difficulties have aroused a big debate on the opportunity to replace the system of anchor peg with one with flexible exchange rates, which enables to use the exchange rate policy, and, in particular, the devaluation as a means of the economy regulation.

Although the International Monetary Fund has estimated that the dirham is not misaligned, it is widely believed that his strong anchorage to the euro has translated the appreciation registered by the European currency against the dollar in the 2002-2008 period, in a similar appreciation of the dirham, estimated by about 28%. This would have resulted in a loss of competitiveness of Moroccan production, particularly for the benefit of other countries of the region, such as Tunisia and Egypt. It also believes that the basket peg regime could be difficult to manage due to the rapid progress in the process of capital movements liberalization.

In this context, the Moroccan central bank has publicly announced its intention to introduce, within three years, a flexible exchange rates regime. This plan has been approved by International Monetary Fund, who has declared its intention to cooperate with the Moroccan authorities in adopting all necessary actions to facilitate the transition and to provide the necessary technical assistance (IMF, 2014).

However, it is questionable whether the Moroccan economy is really ready for adoption, without risk of a system of flexible exchange rates. The basket peg system, as admitted by the IMF, has helped to establish credibility and trust the Moroccan economy, ensuring growth path in stability. The introduction of a flexible exchange rates regime could reverse these positive results. The small size of
the economy, its trade openness, the considerable delays that still characterize its banking system and its financial markets can expose it to the risk arising from sudden changes in the exchange rate and speculative capital movements.

Moreover, as shown by some studies (Ouchen, 2013; Bakhti, Sadiki, 2013), the positive effects on the competitiveness, expected from devaluation, may not work in Moroccan reality.

But there is another consideration, generally neglected, which makes the choice of a basket peg regime, with a strong weight of the euro, the best one for Moroccan economy. This is its peculiarity of being the place of significant migration outflows towards the UME and of large remittance inflows from the UME. This feature is generally ignored by studies that endorse the superiority, for Morocco, of a regime characterized by greater exchange rate flexibility (IMF, 2005; Achy, Milgram, 2003; Said, Aziz, Zakaria, 2012; Bouzahzah, Bachar, 2014).

7. The Role of Remittances in the Choice of Moroccan Exchange Rate System

For countries, such as Morocco, characterized by significant migration outflows and a high incidence of remittances on its main macroeconomic variables, exchange rate policy plays a key role. In fact, the link between exchange rates and remittances is twofold: on the one hand, the changes in exchange rates influence the monetary value of remittances, generating an income effect; on the other hand, remittances can cause changes in exchange rates, resulting in an exchange rate effect.

Regarding the income effect, the variations in the exchange rate between the currency of the country of origin of remittances and that of the country of destination directly affect the value in national currency of the migrants transfers, influencing spending decisions of their recipient. Thus, an appreciation of the currency of the host country leads to an increase in the value in national currency of remittances, increasing the possibility of spending, with consequent effects on national economic dynamics. It follows that frequent changes in the exchange rate may confer a unsteady dynamic to a developing country, such as Morocco, characterized by a significant migration outflows.

With reference to the exchange rate effect, it consists of two other effects: one direct and one indirect.

The direct effect refers to impact that the remittances have on the foreign exchange market when they are converted into national currency. If the receiving economy is small, open and if remittances are an important source of foreign exchange, their conversion could lead to an appreciation of the nominal exchange rate.

The indirect effect arises through the impact of remittances on income. Particularly, to the extent that they increase spendable money incomes, they may favor an expansion of aggregate demand, resulting in higher prices and an appreciation of the real exchange rate. Moreover, if the economy is small and the prices of tradable goods are given, the price increase could essentially affect the non-tradable goods. The consequence would be a change in relative prices in favor of the latter, with the effect to reallocate production towards them and to penalize the tradable goods sector, more exposed to international competition and, therefore, exports. In other words, it would produce the so-called phenomenon of Dutch Disease, employed by the model 'Salter-Swan-Corden-Dornbusch' to explain the consequences of capital inflows in small open economies, such as Morocco.

Overall, therefore, for small countries with strong migration outflows, the inflow of remittances in foreign currency and their conversion into national currency could cause a real exchange rate appreciation, which adversely affects the production competitiveness, encouraging imports and discouraging exports. (Acosta, Larney, Mandelman, 2007; Montiel 2006; Bourder and Falck, 2006; Loser, Lockwood, Minston, Balcazar 2006; Amuedo-Dorantes, Pozo, 2004).

Of course, the entity of these effects depends on the exchange rate system adopted, which affects the exchange rate stability. With reference to Morocco, the current system of basket peg has worked positively, ensuring a stable economic dynamics and avoiding phenomena of real effective exchange appreciation.
In fact, with regard to the income effect, cannot be overlooked that 68% of remittances originates from the euro area, with strong relevance to those of French origin, accounting for over 37% of the total (Office des Changes, 2013).

In this context, the strong anchorage of the dirham to the European currency has limited the variability of the exchange rate euro-dirham, with a stabilizing effect on the value in national currency of remittances. This has contributed to reduce the volatility of demand and to ensure a more stable economic trend.

**Figure 5:** Nominal exchange rate euro-dirham, 1999 – 2014 (daily values)

![Nominal exchange rate euro-dirham, 1999 – 2014 (daily values)](image)

Source: Bank of Italy

Indeed, as highlighted by Fig. 5, after a phase of substantial appreciation of the euro against the dirham in the 2001-2004 period, the changes in the exchange rates have been contained in a range from 11 to 11.50 dirhams per euro.

A similar conclusion is reached considering the *exchange rate effect*. As shown in Fig. 6, during the new millennium, coinciding with the strengthening of the euro weight in the Moroccan basket, the changes in real effective exchange rates of the dirham were contained and bearish. It is worth noting that this has been occurring even since 2002, following the migration intensification and the rapid increase in remittance flows (fig.6).

**Figure 6:** Real effective exchange rates (monthly data)

![Real effective exchange rates (monthly data)](image)

Source: Bruegel database Paiements
So, even with reference to exchange rate effect, the strong link of the dirham with the euro seems to have avoided the real effective exchange rate appreciation of the Moroccan currency. Particularly, it has protected the Moroccan economy from the effects of the large appreciation recorded by the euro against many foreign currencies and, therefore, from the consequences of a relevant income effect related to the increase of the value in national currency of remittances.

Overall, the basket peg has worked positively in Moroccan experience, ensuring a stable economic dynamics and contributing to avoid the appreciation of the real exchange rate and its negative impact on the competitiveness of exports. These positive effects deserve to be widely considered in the evaluation of the programmed changes to the exchange rate system.

8. Conclusion
Remittances can play a key role in the development process of a country with significant outward migration flows. This is the case of Morocco. The analysis conducted in this study has shown that the migrant monetary transfers have been a fundamental factor of the Moroccan economy growth.

In particular, the VAR econometric analysis has shown that, in the 1980-2014 period, remittances have influenced, according to a causal unidirectional relationship, the growth of GDP per capita. This influence has been estimated at 84%, a value much higher than that found for other macroeconomic variables that are significant for the growth theory. This result has also been confirmed by the variance decomposition and by the simulation of a forecast at 30 temporal projections. Indeed, these analyzes have revealed that the effect of the variation of remittances on economic growth does not lose effectiveness to the passage of time, confirming the hypothesis that they represent an engine of economic growth.

This is an important conclusion because it implies that the role of remittances in the growth process must be ever present in the taking economic policy decisions of Morocco. This also applies to the exchange rate policy. In fact, given the close relations existing between remittances and exchange rates, decisions relating the latter may have important consequences on the dynamics of the economic system.

For a country, such as Morocco, characterized by strong migration outflows, directed mainly towards a specific advanced economic area, and by significant remittance inflows in the currency of the same area, the best exchange rate system may be a basket peg, whose composition reflects not only the direction of trade and financial flows, but also those of migration flows and remittances.
Reference


Appendix 1