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Abstract

This paper examines the link between remittances, institutions quality and economic growth for 11 South-Mediterranean countries (SMC) over the period 1984–2014. Based on a Generalized Method of Moment (GMM) estimation, the empirical analysis reveals three findings: institutions quality have a positive effect on economic growth, there is no direct link between remittances and economic growth and remittances and institutional quality are complements in enhancing economic growth.

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1 Introduction

International migrant remittances have become a significant means of external financing for developing countries. Only considering remittances passing through formal channels, the World Bank estimates that remittances have reached US$ 436 billion in 2014 (World Bank, 2013). After a modest decline in 2009, because of the global financial crisis, remittances flow to developing countries are expected to grow at a lower but sustainable rate of 7-8 percent annually during 2014-2016 to reach US$ 450 billion by 2016. However, remittances benefit some regions more than others. With US$ 73 billion of remittances, the South-Mediterranean region is one of the top remittances recipients in the world after East Asia and Pacific, Latin America and the Caribbean.

In the literature surveys, neither theoretical nor empirical studies have provided a conclusive answer regarding the effect of remittances on economic growth. On the one hand, some studies have provided evidence that remittances have a positive effect on economic growth because they increase investments in human and physical capital (Woodruff, 2007 ; Giuliano and Ruiz-Arranz, 2009 ; Edwards and Ureta, 2003 ; Rapoport and Docquier, 2005 ; Calero, Bedi and Sparrow, 2009), enhance total factor productivity (Abdih et al., 2012) and/or alleviate poverty (Pradhan and Mahesh, 2016 ; Akobeng, 2016 ; Majeed, 2015 ; Adams Jr and Cuecuecha, 2013). On the other hand, other studies have pointed out that remittances have a negative effect on economic growth because they reduce work effort (Chami et al., 2005), create moral hazard (Gubert, 2002), accelerate inflation (Khan and Islam, 2013) and lead to Dutch disease effects[1] (Amuedo-Dorantes et al., 2010 ; Bourdet and Falck, 2006 ; Acosta et al., 2009).

The larger part of these studies have only focused on the direct effects of remittances. However, empirical results also indicate that remittances may indirectly affect the determinants economic growth. In this context, Fajnzylber et al. (2008) explore for Latin American countries the indirect effect of remittances on growth by including as a regressor a term of interaction between remittances, human capital, political institutions and financial system's depth. The authors find that human capital accumulation and improvement in institutional quality enhance the positive effect of remittances on economic growth. However, financial depth substitutes for international remittances in stimulating growth. According to Fajnzylber et al. (2008), remittances are considered to be ineffective in enhancing economic growth only in countries with low human capital accumulation and weak institutions quality.

Giuliano and Ruiz-Arranz (2009) study the relationship between remittances, financial development and economic growth. To examine the indirect effect of remittances on economy, the authors include an interaction term between financial development and remittances. They find that remittances substitute for financial services in promoting growth. Giuliano and Ruiz-Arranz (2009) conclude that remittances offer an answer to the needs for credit and insurance that the local market has failed to provide. However, Bettin and Zazzaro (2012) find complementarity between remittances and bank efficiency in economic growth. In other words, remittances

[1] i.e. an appreciation in the real exchange rate accompanied by resource allocation from the traded sector towards the non-traded sector.

promote growth only in countries whose banks function well. As Giuliano and Ruiz-Arranz (2009), Barajas, Chami and Fullenkamp (2009) use microeconomics variables as instruments to thwarti potential endogeneity between remittances and growth. They find non-significant direct effects of remittances on growth in an estimate for a panel of 84 developing countries. Finley, Adams and Klobodu (2016) examine for Sub-Saharan Africa countries the relationship between remittances, regime durability/democracy and economic growth over the period 1970-2012. They find that the growth effect of remittances is enhanced in the presence of a democratic and stable governments.

The literature review reveals that the effect of remittances on economic growth highly depends on the estimation method (linear or non-linear estimation), the sample period, the country characteristics (strong financial development, good institutions quality, strong bank efficiency?), observed and unobserved countries specific effect and the endogeneity of remittances. However, as far as we know, In SMC, no studies have directly investigated the indirect effect (non-linear estimation). They have focused only on the direct effect. In this paper, we try to fill the gap by looking at the non-linear relationship between remittances and economic growth. Specifically, we investigate at the interaction between remittances and the level of institutional quality. To do this, a number of interaction variables have been included in the empirical investigations to gauge the best conditions in which remittances can improve economic growth in SMC. The next section describes the model specification, the econometric technique and the data. Section 3 discusses empirical results and, finally, section 4 provides concluding remarks.

2 Model specification and econometric technique

2.1 Model specification and estimation method

To examine the links between remittances, institutional quality and economic growth, we use an extended version of the growth model of Barro (1996 ; 2003):

$$GrowthGDP_{it} = \beta_0 GrowthGDP_{it-1} + \beta_1 Rem_{it} + \theta X_{it} + \eta_t + \nu_i + \epsilon_{it} \qquad (1)$$

Here, $GrowthGDP_{it}$ indicates the (logarithm of) growth of real GDP per capita in country i at time t. REM_{it} is the key explanatory variable referring to the ratio of the remittances to GDP. Remittances are the current transfers sent by resident or nonresident workers to the country of origin. X_{it} contains a standard set of determinants of economic growth.η_t is the time specific effect, ν_i an unobserved country specific effect and ϵ_{it} is the error term.

As a starting point, we do not include any variables of institutional quality (InsQ), we test only the direct effect of remittances on economic growth. However, in the second set of regressions, we test the hypothesis that the responsiveness of economic growth to remittances depends on the level of institutional quality. In other words, we explore how the level of institutional quality of the recipient country defines the impact of remittances on economic growth. The novelty of our paper lies in its

estimation of the combined effect of remittances and the institutional quality on economic growth for SMC. To this end, we introduce in Equation (1) an interaction term between remittances and the institutional quality. The modified versions of Equation (1) that include the interactive term can be written as:

$$GrowthGDP_{it} = \beta_0 GrowthGDP_{it-1} + \beta_1 Rem_{it} + \beta_2 (Rem_{it} \times InstQ_{it}) + \beta_3 InstQ_{it} + \theta X_{it} + \eta_t + \nu_i + \epsilon_{it} \quad (2)$$

As we explain above, Equation (2) tests the hypothesis that the institutional quality of the recipient country influences the capacity of remittances to affect economic growth. Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction (Douglass North, 1990). Indeed, this paper is interested in β_1 and β_2, which provide information on the marginal impact of remittances on growth conditional upon the level of the institutional quality. β_1 and β_2 make it possible to assess whether remittances have different influences on growth in countries with high institutional quality. A positive interaction ($\beta_2 > 0$) would indicate that the institutional quality enhances the positive effect of remittances on growth when ($\beta_1 > 0$). Otherwise, when the interaction is negative ($\beta_2 < 0$), the institutional quality diminishes[2] or aggravates [3] the negative impact of remittances on growth.

An important methodological challenge is related to the presence of endogenous regressors. Thus, the presence of a lag-dependent variable on the right hand of the equation, the inverse causality relationship between remittances and growth (i.e. remittances may affect the growth of the receiving countries and thereby affect the future amount of remittances received), reverse causality between the dependent variables and some of our explanatory variables (i.e. remittances, revenue, inflation, GDP growth and the quality of institutions) will lead to simultaneity bias of the regression's coefficients. Analysts who consider this endogeneity problem often use the Generalized Method of Moments (GMM) estimation technique developed by Arellano and Bond (1991) and Blundell and Bond (1998). The GMM estimator has the advantage that it is more efficient than the Ordinary least squares (OLS) estimator. It is also widely known as a solution to measurement errors (errors in variables) and omitted-variable biases (Guillaumont and Kpodar, 2006). For the endogenous variables, we rely on the internal instruments that are one lag variables. To check the validity of the instruments, the Sargan/Hansen test has been applied.

Differentiating equations (2) with respect to remittances, we can check if remittances have a different impact on growth with high values of institutions quality (Equation (3)). Therefore, Equation (4) gives the marginal effect of remittances on economic growth for different levels of institutions quality. Moreover, according to Equation (3), the threshold (minimum) level of institutional quality at which the effect of remittances on economic growth is equal to zero is (-β_2/ β_1).

$$\vartheta = \frac{\partial GrowthGDP}{\partial Rem} = \beta_1 + \beta_2 \times InstQ_{it} \quad (3)$$

[2]When $\beta_1 > 0$
[3]When $\beta_1 < 0$

$$v = \beta_1 + \beta_2 \times InstQ_{it} \tag{4}$$

2.2 Variable definitions and data

To estimate our model, we use as proxy of institutions quality the Political Risk Index[4] which is provided by International Country Risk Guide[5]. According to the PRS Group, the index provides a means of assessing the political stability of the countries covered by ICRG on a comparable basis. In general terms, the score awarded is the sum of twelve components. A score of 100 equates to very low political risk and a score of 0 points to very high political risk.

However, in accordance with Bekaert et al. (2006), we use also its twelve PRS indicators separately: (i) government stability[6], (ii) socioeconomic conditions[7], (iii) investment profile[8], (iv) internal conflict[9], (v) external conflict[10], (vi) corruption[11], (vii) military in politics[12], (viii) religious tensions[13], (ix) law and order[14], (x) ethnic tensions[15], (xi) democratic accountability[16], (xii) bureaucracy quality[17].

As mentioned above, remittances include personal transfers and compensation of employees. Personal transfers consist of all current transfers in cash or in kind

[4]https://www.prsgroup.com/wp-content/uploads/2014/08/icrgmethodology.pdf

[5]https://www.prsgroup.com

[6]Assessment both of the governments ability to carry out its declared program(s), and its ability to stay in office. The risk rating assigned is the sum of three subcomponents, each with a maximum score of four points and a minimum score of 0 points. A score of 4 points equates to Very Low Risk and a score of 0 points to Very High Risk

[7]This is a measure of the socioeconomic pressures at work in society that could constrain government action or fuel social dissatisfaction.

[8]This is a measure of factors affecting the risk to investment that are not covered by other political, economic and financial risk components. The risk rating assigned is the sum of three subcomponents, each with a maximum score of four points and a minimum score of 0 points. A score of 4 points equates to Very Low Risk and a score of 0 points to Very High Risk. The subcomponents are : Contract Viability/Expropriation, Profits Repatriation and Payment Delays.

[9]This is a measure of political violence in the country and its actual or potential impact on governance.

[10]The external conflict measure is an assessment both of the risk to the incumbent government from foreign action, ranging from non-violent external pressure (diplomatic pressures, withholding of aid, trade restrictions, territorial disputes, sanctions, etc) to violent external pressure (cross-border conflicts to all-out war).

[11]This is a measure of corruption within the political system.

[12]The military is not elected by anyone. Therefore, its involvement in politics, even at a peripheral level, is a diminution of democratic accountability.

[13]Religious tensions may stem from the domination of society and/or governance by a single religious group that seeks to replace civil law by religious law and to exclude other religions from the political and/or social process.

[14]Law and Order form a single component, but its two elements are assessed separately, with each element being scored from zero to three points. To assess the Law element, the strength and impartiality of the legal system are considered, while the Order element is an assessment of popular observance of the law.

[15]This component is an assessment of the degree of tension within a country attributable to racial, nationality, or language divisions.

[16]This is a measure of how responsive government is to its people, on the basis that the less responsive it is, the more likely it is that the government will fall, peacefully in a democratic society, but possibly violently in a non-democratic one.

[17]This is a measure of the institutional strength and quality of the bureaucracy is another shock absorber that tends to minimize revisions of policy when governments change.

made or received by resident households to or from nonresident households. Personal transfers thus include all current transfers between resident and nonresident individuals. Compensation of employees refers to the income of border, seasonal, and other short-term workers who are employed in an economy where they are not resident and of residents employed by nonresident entities. The remittances variable is scaled by the home country's GDP. According to the World Bank available data,in 2015, the SMC remittances inflows as share of GDP were 6,5%. Further, Jordan and Lebanon remittances remittances share of GDP were 15%, 6% for Tunisia, Morocco and Egypt, 2 to 3% for Algeria, Iran, Iraq Turkey and Syria. Figure 1 and 2 display the evolution of SMC remittance inflows (in volume and in share of GDP) during the period 1985-2015.

The choice of the variables and the proxies of the determinants of growth is guided by the literature (Barro, 1996; Giuliano and Ruiz-Arranz, 2009 ; Combe and Ebeke, 2010 ; Imai, K. et al., 2014). These variables consist of past $GrowthGDP_{t-1}$ to test the convergence hypothesis (Barro, 1996). Investment represents the gross fixed capital formation as a percentage of real GDP and is used as a proxy for investment in physical capital. Trade openness is defined by the ratio of the sum of exports and imports over GDP is used to evaluate the country's degree of openness. The inflation rate is a proxy to monetary discipline and macroeconomic stability. Government consumption is defined as the ratio of government consumption to GDP. As financial depth, we use domestic credit to the private sector by banks as a percentage of GDP. The full sample dataset comprises an unbalanced panel of 12 countries covering the period 1984 – 2014. The initial year is chosen due to data availability. The variables definitions, the summary statistics as well as data sources are provided in the appendix (Table 4 and Table 5).

3 Evaluation of the results

The discussion will primarily focus on our variables of interest (remittances and institution quality), although we also analyze the results obtained from the variables of control.

As noted above, to estimate our model, we do not use OLS estimation which may lead to serious problems (measurement errors, omitted variables errors bias). However, Tables 1 and 2 present the results of the GMM dynamic estimations. The regressions satisfy mutually the Sargan/Hansen test of over-identifying restrictions and the serial correlation test. Moreover, in all specifications the Hansen-J statistic does not reject the over-identifying restrictions, confirming that the instrument set can be considered valid (i.e., all the instruments being exogenous). Moreover, the results show that the p-value of AR(1) and AR(2) tests indicate that problems of correlation do not exist in the first and second order[18]. The columns 1 and 2 report the traditional regression of remittances-economic growth model and the columns 2 and 3 report the effect of the Political Risk Rating index (ICRG) and remittances interaction on economic growth. The last eight columns report the effect of the

[18] AR(1) and AR(2) are tests of the first order and second order serial correlation of the residuals, which under the null of no serial correlation are distributed as N(0,1).

components of this index and remittances interaction on economic growth.

The results of columns 1 and 2 show that the coefficient of the GDP lag is negative and statistically significant which indicates the presence of a convergence process. The poor countries grow faster than rich economies, once the determinants of their steady state are held constant. These results are consistent with the standard growth theory which suggests that the economy tends to approach its long run position if the starting GDP per capita is low (Barro and Sala-I-Martin, 1995; Easterly and Levine, 1995). As expected, a positive correlation between investment, financial development and economic growth is found. A higher level of private investment/financial development may lead to higher economic growth.

However, population growth rate, trade openness and government spendings negatively affect the rate of economic growth (Jongwanich, 2006 ; Acosta et al., 2009). This finding seems to validate the idea that higher involvement of the government in the economy will have significant consequences on the growth performance (Flster and Henrekson, 2001). Finally, the effects of human capital and inflation are insignificant although the coefficients change from one specification to another.

Moving to our key variables, we can see (column 1 and 2) that the estimated coefficient of remittances is not statistically different from zero when they are simply added as an additional explanatory variable. It means that remittances do not have a direct impact on economic growth. These findings are in contrast to the literature reviews that have found a positive effect of remittances on economic growth (Klobodu al., 2016 ; Imai et al. 2014, Nyamongo et al. 2012) but consistent with the results of EL Hamma (2016), Lim and Simmons (2015) and Barajas et al. (2010). These results suggest that remittances inflows to SMC could be sent in the presence of asymmetric information. This one creates an imbalance of power between migrants and the recipients which may adopt an opportunistic behavior and show a deterioration in their living conditions. The recipients opt to live off from migrant's transfers rather than by working. In this case, the receivers may consider remittances as an alternative for labor income and increase their leisure activities. This leads to moral hazard problems which are harmful to economic growth. Moreover, column 3 reports that the independent effect of the institutional composite index (ICRG) is positive and statistically different from zero. This suggests that countries with good institutions register a high growth rate comparing to countries with poor institutions. This finding corroborates earlier finding by Farooq and al. (2013) for Pakistan, d'Agostino and al. (2016) for African countries, Huang (2015) for Asia-Pacific countries and Alam (2017) for a panel of 86 countries.

To explore the relationship between remittances and institutions quality, we estimate Equation (2) with the interaction term between remittances and ICRG composite index. The results (columns 4) show that the coefficient associated to remittances is negative and significant while the coefficient of interaction term is positive and statistically significant. These mean a high level of institutions quality could elim-

inate[19] the negative effect of remittances on economic growth[20] ($\beta_2 < 0$). In other words, countries with the worst institutional quality can't have the advantage of their remittances. In SMC, remittances and institutional quality are a complement in enhancing growth. Given these results (colum 4), the required threshold ($-\beta_2/\beta_1 =$) is 60.18. Table 3 compares this calculated threshold with the level of the institutional quality in each country of our sample. Out of 12 countries considered in the analysis, only Tunisia and Morocco have an institutional system sufficiently developed to benefit overall from remittances.

In order to determine the main component of the ICRG index through which the effect of remittances on economic growth could be transmitted, we replace in Equation (2) the ICRG index by its components that we have re-classified into four categories (ICRG 1, ICRG 2, ICRG 3 and ICRG 4). The results of columns 5 to 12 show that while ICRG 1 (government's stability and the countries' socio-economic conditions) and ICRG 4 (law and order, ethnic tension, democracy accountability and bureaucracy quality) are non-significant, the coefficients associated with ICRG 2 (investment profile) and with ICRG 3 (Internal and external risks, corruption, military in politics and religious tensions) are positive and significant. The presence of a good investment profile and the absence of internal and external risks, corruption, military in politics and religions tensions send a positive sign to recipient households, which may correct the asymmetry of information and promote growth. This implies that in SMC the economic performance is positively correlated with the quality of institutions. These results corroborate the work of Gazdar and Cherif (2015), Rogier Nacet-Chenaf (2013) and Catrinescu et al. (2009) for which a low level of ethnic

[19]Remittances may have a negative effect on economic growth. However, the institutions of the country of origin can moderate this effect. First, a legal and regulatory system involving protection of property rights, contract enforcement, and good accounting practices has been identified as essential for financial development (Huang 2010). A solid financial system increases migrants confidence in the banking system, and money will be sent through banks (more available money in the local financial sector), it can be used to refund micro- projects; or invested on projects to achieve higher growth and allow job creations. remittances might become a substitute for inefficient or non-existent credit markets by helping local entrepreneurs to have an alternative source of credit, and bypass the lack of collateral or high lending costs and start productive activities (Guiliano, 2010). Second, when a country with a good institution (enforcement of contracts, property rights, the absence of corruption, no external and internal conflict) migrants or their family in the country of origin would be more comfortable regarding the situation of the home country; would have an incentive to send money home and invest, innovate and take part in the home economic activity. They will have the motivation to invest its remittance income in physical or in human capital because it has adequate control over the return to the assets that are thereby produced or improved.

[20]A set of mechanisms could be highlighted, under which remittances can have negative effect on growth: 1-Too much foreign currency (from migrant workers) would increase the demand for the local money (comparing to the available supply) this is may increase the price of the local money and conduct to exchange rate appreciation (which conducts in turn to a lose of external competitiveness. 2-Since remittances could play the role of an alternative to income in the recipient family. The uses of these incomes either within the family of the migrant worker (ostentatious consumption expenditure), would stimulate the consumption at the expense of investment. This could trigger the economy in the medium to long run. remittances could be spent in land acquisitions after saving. This may increase the price of the real estate and stimulate inflation.3-A reduction in the labor supply would conduct to high wage, since the wage in tradable sector could not be changed because price in the tradable sector are exogenous (depends on the external market price); while the non tradable sector would push the pressure on the price (because the wage in non tradable sector increases), So the exchange rate (defined price of nontradeable sector to price of tradable sector) would increase and conduct to an appreciation; then a lose of competitiveness.

tension, good governance, the prevalence of law and order and good socioeconomic conditions are preconditions for the successful use of migrant remittances.

Table 1: Remittances, institutions quality and economic growth (GMM-System estimation)

	Dependent variables : GDP per capita growth (Annual data)					
Independent variables	**Remittances-growth**		**InstQ= ICRG**		**InstQ= ICRG 1**	
	1	2	3	4	5	6
Lagged GDP per capita	-0.9940 (0.25)***	-0.4545 (0.10)***	-0.1855 (0.06)***	-1.2340 (0.09)***	-2.5741 (1.09)*	-3.5734 (0.44)***
Remittances	-0.3450 (0.47)	-0.5343 (0.53)	0.5669 (0.57)*	-1.8354 (0.36)***	1.0831 (1.54)	-0.9423 (0.07)***
Investment	0.4595 (0.11)**	0.5566 (0.34)*	1.5346 (0.24)***	1.0093 (0.49)*	0.7634 (0.25)**	1.4432 (0.31)**
Human capital	0.1984 (0.24)	0.0545 (0.16)	0.4343 (0.22)	-0.8933 (1.47)	1.4940 (1.56)	0.6422 (1.22)
Government spending	-0.8593 (0.28)**	-0.5346 (0.32)**	-1.00043 (0.11)***	-1.0344 (1.51)**	-0.5698 (0.05)***	-0.1643 (1.43)
Population growth	-0.2543 (0.09)***	-0.5543 (0.23)***	-0.3934 (0.19)*	-1.2440 (1.65)	-2.1322 (0.98)**	-2.6052 (1.31)*
Openness	-0.2455 (0.33)	-0.1375 (0.14)*	0.0465 (0.32)	-0.4568 (0.77)	-0.3533 (0.65)	-0.8666 (0.54)
Inflation		0.0465 (0.32)	-0.1475 (0.17)	-0.4547 (0.31)**	-0.2402 (0.32)	-0.2445 (0.43)
Financial development		0.1379 (0.07)*	0.4534 (0.23)*	1.2424 (0.63)*	0.1830 (0.09)**	0.1674 (0.08)**
ICRG			0.1543 (0.03)**	0.1734 (0.05)**		
Remittances × ICRG				0.0305 (0.01)***		
ICRG 1					-2.8392 (2.94)	-0.3432 (0.26)
Remittances ×ICRG 1						0.9832 (0.49)
Observations	253	248	254	268	258	267
AR (1) p-value	(0.003)	(0.031)	(0.001)	(0.033)	(0.001)	-0.001
AR (2) p-value	(0.321)	(0.433)	(0.331)	(0.553)	(0.538)	-0.198
Hansen (p-value)	(0.144)	(0.213)	(0.154)	(0.133)	(0.433)	-0.443

ICRG: Institutional quality published by the PRS group.
ICRG: Is an index ranging from 0 (minimum quality) to 100 (maximum quality).
ICRG 1: Evaluates the government's stability and the countries' socio economic conditions.
Robust standard errors in parenthesis.***, **, * refer to the 1, 5 and 10% levels of significance respectively.

Table 2: Remittances, institutions quality and economic growth (GMM-System estimation) (continued)

	Dependent variables : GDP per capita growth (Annual data)					
Independent variables	**InstQ= ICRG 2**		**InstQ= ICRG 3**		**InstQ= ICRG 4**	
	7	8	9	10	11	12
Lagged GDP per capita	-2.4432 (0.45)***	-2.9482 (0.41)***	-0.7950 (0.07)***	-2.3424 (0.39)***	-0.8573 (0.03)***	-0.8464 (0.04)***
Remittances	0.4533 (2.03)	-0.9545 (0.14)***	-0.0688 (0.14)	-0.8694 (0.24)**	0.00332 (0.04)	-0.0843 (0.21)
Investment	1.5536 (0.33)***	1.0495 (0.32)**	1.5181 (0.41)**	1.9983 (0.98)**	0.7432 (0.30)**	0.4503 (0.22)**
Human capital	2.4542 (1.36)	0.5452 (1.56)	0.1625 (0.19)	-0.1348 (1.47)	2.4638 (3.23)	1.8963 (0.82)
Government spending	-0.4553 (0.48)***	-0.5322 (1.39)	-1.5890 (0.18)***	-1.0023 (0.31)**	-0.8320 (0.21)**	-0.0484 (0.43)*
Population Growth	-1.1553 (0.29)**	-0.3533 (3.54)	-0.2962 (0.09)***	-0.2633 (0.44)	-0.5322 (0.21)***	-0.0393 (0.43)
Inflation	-0.3653 (0.65)	-0.2662 (0.64)	0.3342 -0.55	0.1342 -0.65	0.5342 -0.35	0.5432 -0.65
Openness	-1.4532 (0.45)*	-0.4324 (0.56)	-0.2415 (0.63)	-0.6507 (0.21)**	-0.3426 (0.81)	-0.4034 (0.33)
Financial development	0.1354 (0,06)*	0.2379 (0.07)*	0.7876 (0.23)**	1.0824 (0.54)*	0.9873 (0.09)***	0.7630 (0.08)***
ICRG 2	0.8742 (1.34)	1.0344* (1.12)				
Remittances ×ICRG 2		0.9534 (0.33)**				
ICRG 3			0.8770 (2.54)*	0.4643* (1.12)		
Remittances×ICRG 3				0.5543 (0.03)***		
ICRG 4					2.2342 (2.34)*	0.4435 (0.12)
Remittances×ICRG 4						0.3433 (0.23)
Observations	251	240	246	257	256	252
AR (1) p-value	(0.001)	(0.003)	(0.000)	(0.030)	(0.001)	-0.001
AR (2) p-value	-0.539	(0. 313)	(0.342)	(0.539)	(0.138)	-0.398
Hansen (p-value)	-0.236	(0.243)	(0.394)	(0.136)	(0.487)	-0.487

ICRG 2: Evaluates the investment profile, internal and external risks.
ICRG 3: Evaluates corruption, military in politics and religious tensions.
ICRG 4: Evaluates law and order, ethnic tension, democracy accountability and bureaucracy quality
Standard errors in parenthesis.***, **, * refer to the 1, 5 and 10% levels of significance respectively.

Table 3: Marginal effect of remittances on economic growth based on each country's ICRG index value

Countries	**ICRG index mean** index mean	**The marginal effect** $(\beta_1 + \beta_2 \times InstQ_{it})$
Algeria	51.492	-0.265
Egypt	54.531	-0.172
Iran	50.242	-0.303
Iraq	32.839	-0.834
Jordan	59.705	-0.014
Lebanon	41.685	-0.564
Morocco	60.722	**0.017**
Syria	52.659	-0.229
Tunisia	63.104	**0.089**
Turkey	53.217	-0.212
Yemen	50.199	-0.304

4 Conclusion

This paper has investigated the relationship between remittances, institutions quality and economic growth using panel data from 11 South-Mediterranean countries over the period 19852014. To control for possible endogeneity problems, we employed GMM regressions. The results suggest that remittances do not exert a direct effect on economic growth. However, countries with good institutions register a high growth rate comparing to countries with poor institutions. The evidence shows also that a high level of institutional quality could eliminate the negative effects on economic growth. In other words, remittances and institution quality are complements in enhancing growth. Moreover, the estimations reveal which proxies of institutions quality have an impact on the relationship between remittances and economic growth. Our major finding is that the presence of a good investment profile, the absence of military in politics, religious tensions, internal and external risks and low corruption are a precondition for successful use of remittances.

As institutions and remittances are complements in enhancing growth, it can be deduced from this result that as a policy maker, one needs to formulate appropriate policies which can strengthen both institutional quality and investment profile. To this end, SMC should adopt policies and an institutional structure that assure a minimum risk to investment, no internal and external risks, low corruption and no military in politics or religious tensions.

Appendix

Figure 1: Personal remittances, received (% of GDP)

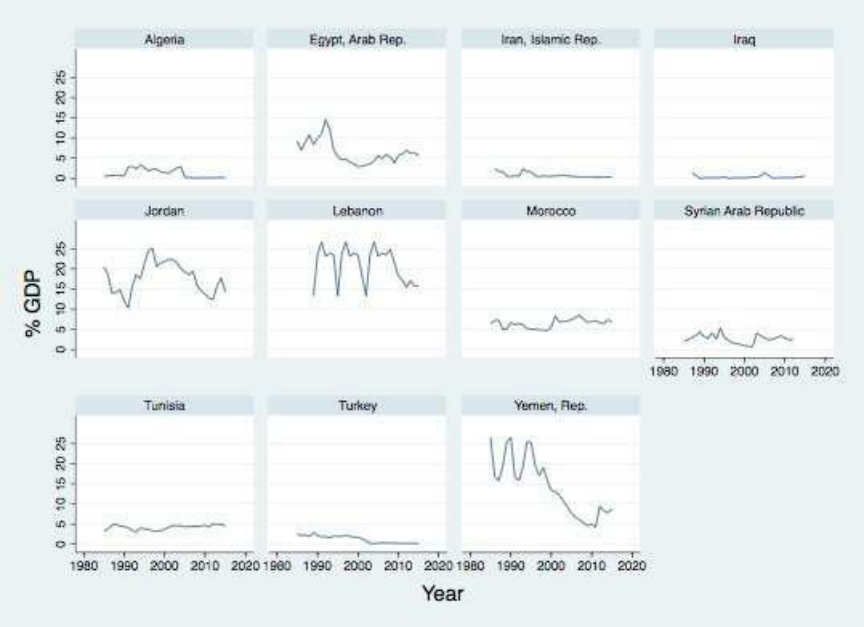

Figure 2: Personal remittances, received (Volume)

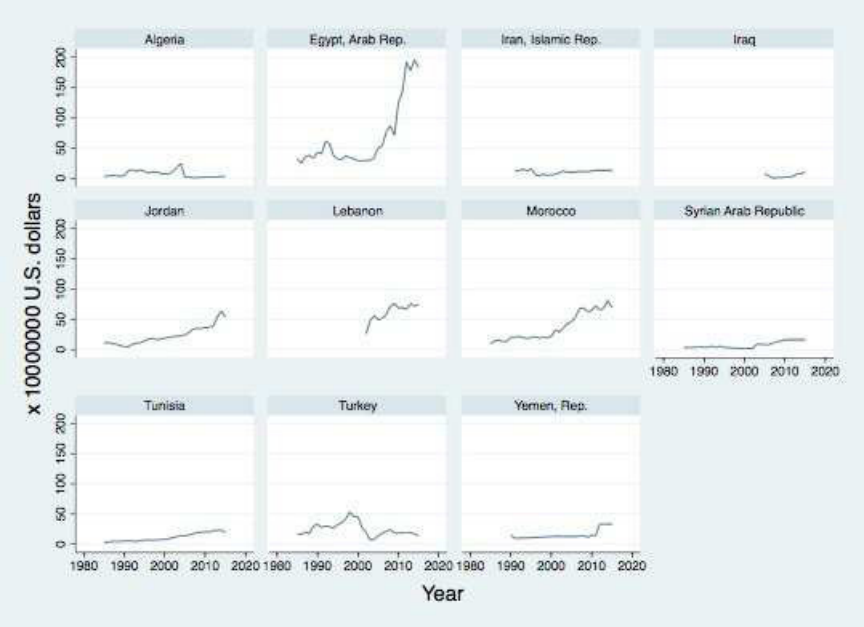

Table 4: Summary statistics

Variables	Mean	Std. dev.	Min	Max	Observations
GDP per capita growth	1.7950	7.9790	-64.99	53.932	373
Per capita income	2068.3	1866.1	188.62	10018	357
Investment	24.282	7.2448	2.9180	58.957	355
Human capital	75.515	18.640	39.450	118.77	396
Government spending	16.479	5.4915	2.3316	43.382	374
Population growth	2.3210	1.1951	-3.3394	7.1075	396
Openness	70.126	30.914	0.0209	154.23	374
Inflation	16.814	37.963	-16.117	448.5	340
Financial development	36.062	24.680	1.2660	99.203	333
Remittances	3.7842	0.2133	3.2665	4.3085	211
ICRG	51.854	8.642	32.839	63.104	341
ICRG 1	6.405	13.866	0.5	11	682
ICRG 2	7.4851	14.086	0	6	933
ICRG 3	2.9464	13.4331	0	5.5	1023
ICRG 4	2.9186	17.2324	0	6	933

Table 5: Variable definitions

Variable	**Description**	**Source**
Growth	Real per capita growth	(WDI-Word Bank)
Lagged GDP	Lagged real per capita income, expressed in log form	WDI-World Bank
Remittances	Workers' remittances and compensation of employees, received (% of GDP) expressed in log-form	WDI-World Bank
Investment	Gross capital formation (% of GDP) expressed in log-form	WDI-World Bank
Inflation	Measured by CPI (annual %)	(WDI-Word Bank)
Human capital	Age dependency ratio (% of working-age population)	WDI-World Bank
Government spending	General government final consumption expenditure (% of GDP)	WDI-World Bank
Population growth	Population growth (annual %)	WDI-Word Bank
Openness	The sum of exports and imports of goods and services as share of gross domestic product (GDP) in log form	WDI-World Bank
Financial development	Domestic credit to the private sector by banks as a percentage of GDP	WDI-World Bank
ICRG	ICRG political risk index (0 : highest risk, 100 : lower risk)	ICRG , PRS Group
ICRG 1	The sum of the subcomponents military in politics' and democratic accountability	ICRG , PRS Group
ICRG 2	The sum of corruption, law and order, and bureaucratic quality	ICRG , PRS Group
ICRG 3	The sum of government stability, socioeconomic conditions, and investment profile	ICRG , PRS Group
ICRG 4	The sum of internal and external conflict, ethnic and religious tensions	ICRG , PRS Group

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