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ASSESSING EFFECT OF REMITTANCES ON ECONOMIC GROWTH OF ALBANIA: AN ECONOMETRIC APPROACH

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Abstract
Remittances are considered to be the basic gain of migration for the emigration countries and their main compensation for losing a part of their labor force. Whether remittances contribute to the economic development and growth of the country receiving them depends on the way they are used, that is what activities they finance. This study examines the relationship between economic growth and remittances in Albania during the period 1992-2015 by using Autoregressive Distributed Lag approach. We found that remittances had positive impact on economic growth but not vice versa. Short-Run multiplier of one dollar remittances is 2.72 dollars GDP, long-run multiplier of one dollar remittances is 11.07. The fact that different periods of times display different levels of efficiency reflected to economic growth, reveals differences in the existing structures and institutions as well as policies pursued.

Keywords: Economic growth; remittances; multiplier, GDP, growth

INTRODUCTION

Remittances have potential to affect economic growth through direct and indirect channels. They facilitate transactions with other countries and finance balance of current account deficits, provide foreign exchange for the imports of capital equipment and raw materials necessary in

industry. They are potential savings for future investment and capital formation, raise the standard of living as a net income gain for households and reduce poverty and inequalities. Remittances increase the income of households, increase consumption and affects aggregate demand and economic growth positively (Arı and Ozcan, 2012).Investments made by remittances affect economic growth indirectly (Woodruff and Zenteno, 2004). Remittances affect economic growth indirectly by reducing the volatility against changes in the economy and portfolio investments (Ramey and Ramey, 1995). Remittances affect economic growth indirectly by contributing to the development of financial sector (Giuliano and Ruiz-Arranz,2009).In the decisions on use of remittances emigrants face dilemma of accumulating savings or purchasing consumer or capital goods (Nikas and King,2005: 241). Most of research findings for Albania converge to conclusion that most of remittances are used in order to construct or repair houses, purchase clothes and medical care, acquire land and animal stock and finance every day need. About 17% of Albanian businesses has been set up and supported by migrants (Kule et.al., 2002:236).

We investigate the impact of remittances with gross domestic products (GDP) on economic growth in Albania during the period 1992-2015 by using co-integration based on Autoregressive Distributed Lag approach. The study is structured as follows: The next section overviews the existing literature between remittances and economic growth. Section 3 introduces the data and the method, Section 4 presents and discusses empirical findings of the study and Section 5 presents conclusion and policy implications.

LITERATURE REVIEW

There have been a great number of studies on the relationship between economic growth and remittances in developing countries .These studies have reached mixed findings. Although the issue of the economic implications of remittances has been investigated by many researchers, neither a universal model, nor specific economic theory has been formulated to this end. Most of the studies have found a positive relationship between remittances and economic growth, Nyamongo et al. (2012).Some studies have found that there has been no relationship between economic growth and remittances (IMF (2005), Ahamada and Coulibaly (2013), Lim and Simmons (2015). On the other hand relatively few studies have found that there was a negative relationship between economic growth and remittances (Chami et al. (2003).IMF (International Monetary Fund) (2005) examined the effect of remittances on economic growth in 101 developing countries during the period 1970-2003 and found that there was no statistically significant relationship between economic growth and remittances. Pradhan et al. (2008) examined the impact of remittances on economic growth in 39 developing countries during the

period 1980-2004 by using panel regression and found that remittances had positive effect on economic growth. Karagoz (2009) examined the impact of remittances on economic growth in Turkey during the period 1970-2005 by using Johansen co integration and found that remittances had negative impact on economic growth. Nyamongo et al. (2012) examined the impact of remittances and financial development on economic growth in of 36 African countries during the period 1980–2009 by using panel regression and they found that remittances had positive impact on economic growth. Ahamada and Coulibaly (2013) investigated the causal relationship between economic growth and remittances in 20 Sub-Saharan African countries during the period 1980-2007 by using Granger causality test and found that there was no causal relationship between economic growth and remittances. Chami and Jahjah (2003) found that migrants remittances have negative impact on growth in per capita incomes. The study reported three facts: significant proportion, and often the majority of remittances are spent on consumption; a smaller part of remittance funds goes into saving or investment; the ways in which remittances are saved or invested in housing, land, are not necessarily productive to the economy as a whole. Empirical results indicate that remittances may indirectly affect real exchange rate leading to the Dutch Disease phenomenon, where remittances inflow causes a real appreciation, or postpones depreciation, of the exchange rate. Exchange rates appreciate in countries with large remittances which will in turn hurt the economic growth.

RESEARCH METHOD

We examined the impact of remittances on economic growth in this study as control variables in a time-series analysis. Firstly, we conducted the stationarity tests of the time series with Augmented Dickey-Fuller test. We then determined the long run relationship among the variables by co- integration test based on ARDL bound test approach. We conduct Threshold regression**.** Threshold Variable is D(Y1(-1)). Period 1992-2015 is divided into two regimes: Regime 1: D(Y1(-1))<374.3 Regime 2: D(Y1(-1))>=374.3. By Koyck Model was calculated the Short-Run multiplier of one dollar remittances, decreasing rate of X2 effect on GDP and effect of adjustment rate per year and expected lag of effect long-run multiplier. We analyses by Error Correction Model of D(Y1) and D(X2) long-run equilibrium during the studied time period. By the Granger test we analyses the influence of GDP by remittances and vice versa.

Data

International migration from Albania has streamed since 1990. Until end of 1992, economic transformations of transition led to an underlined reduction of agricultural and industrial output, increase of unemployment and reduction of real wages, being reflected in the further deepening

of poverty, thus urging recurrent migrations. A relative improvement of some macroeconomic indicators was noticed after this year, being reflected even in migration rate reduction. But, since the end of 1996, and especially along 1997, the collapse of pyramid schemes caused a socio-political chaos, urging a new massive migration wave. That's way the official statistics of migration analysis begin since year 1992.

We used annual data of gross domestic product (GDP) and personal remittances during the period 1992- 2015 to investigate the relationship between economic growth and remittances. All the data were taken from the database of World Development Indicators of the World Bank (World Bank, 2017). The variables used in the econometric analysis and their symbols are presented in Table.1. Eviews 9 software package was used in the analysis of the dataset.

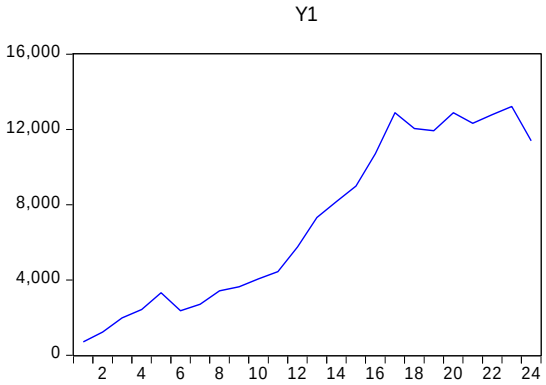
Table 1. Variables

Variables	Variables symbols
Personal remittances, received (current US$) in million dollars	X2
GDP (current US$) in million dollars	Y1
Time captures effects of other factors except for X2=remittances	T
Differenced in GDP	D(Y1)
Differenced in Remittances	D(X2)
Logarithm of GDP	Log(Y1)
Logarithm of Remittances	Log(X2)

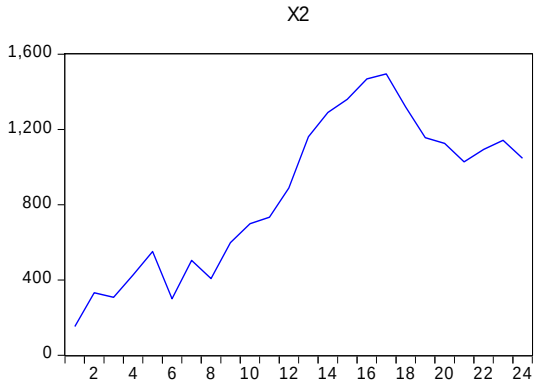
Table 2. Data:X2 Remitances;Y1 GDP;T Period of Time (by years from1 to 24)

Year	X2	Y1	T	Year	X2	Y1	T
1992	151.8	709.5	1	2004	1160.7	7314.9	13
1993	332	1228.1	2	2005	1289.7	8158.5	14
1994	307.1	1985.7	3	2006	1359.5	8992.6	15
1995	427.3	2424.5	4	2007	1468	10701	16
1996	550.9	3314.9	5	2008	1495	12881.4	17
1997	300.3	2359.9	6	2009	1318.5	12044.2	18
1998	504.1	2707.1	7	2010	1156	11927	19
1999	407.2	3414.8	8	2011	1125.7	12890.9	20
2000	597.8	3632	9	2012	1027.1	12319.8	21
2001	699.3	4060.8	10	2013	1093.9	12781	22
2002	733.6	4435.1	11	2014	1141.7	13219.9	23
2003	888.7	5746.9	12	2015	1047	11398.4	24

Graph 1. GDP Dynamics 1992- 2015



Graph 2. Remittances Dynamics 1992-2015



FINDINGS AND DISCUSSION

Unit Root tests for stationarity

Table 3. For Y1; Augmented Dickey-Fuller test statistic

Null Hypothesis: Y1 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=5)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.086461	0.7031
Test critical values:	1% level	-3.752946	
	5% level	-2.998064	
	10% level	-2.638752	

*MacKinnon (1996) one-sided p-values.

Table 4. D(Y1) ; Augmented Dickey-Fuller test statistic

Null Hypothesis: D(Y1) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=5)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.344421	0.0250
Test critical values:	1% level	-3.769597	
	5% level	-3.004861	
	10% level	-2.642242	

*MacKinnon (1996) one-sided p-values.

D(Y1) is stationary.

Table 5. X2; Augmented Dickey-Fuller test statistic

For X2:
Null Hypothesis: X2 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=5)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.716518	0.4101
Test critical values:	1% level	-3.752946	
	5% level	-2.998064	
	10% level	-2.638752	

*MacKinnon (1996) one-sided p-values.

X2 is nonstationary.

Table 6. D(X2); Augmented Dickey-Fuller test statistic

Null Hypothesis: D(X2) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=5)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.441323	0.0022
Test critical values:	1% level	-3.769597	
	5% level	-3.004861	
	10% level	-2.642242	

*MacKinnon (1996) one-sided p-values.

D(X2) is stationary.

Econometric modeling and analysis

Table .7: Pairwise Granger Causality Tests

Pairwise Granger Causality Tests
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
X2 does not Granger Cause Y1	22	3.56792	0.0508
Y1 does not Granger Cause X2		0.88121	0.4324

Result is that GDP is influenced by remittances but not vice versa.

Option 1

Table 8: Model Y1 vs X2 ,T

Model Y1 vs X2 T:
Dependent Variable: Y1
Sample: 1 24
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1354.746	509.7018	-2.657918	0.0147
X2	3.178420	0.964309	3.296058	0.0034
T	459.1390	56.78534	8.085520	0.0000

R-squared	0.948878	Mean dependent var	7110.371
Adjusted R-squared	0.944009	S.D. dependent var	4525.632
S.E. of regression	1070.872	Akaike info criterion	16.90680
Sum squared resid	24082126	Schwarz criterion	17.05406
Log likelihood	-199.8816	Hannan-Quinn criter.	16.94587
F-statistic	194.8907	Durbin-Watson stat	0.491515
Prob(F-statistic)	0.000000		

T captures effects of other factors except for X2=remittances

Y1 = -1354.7 + 3.18*X2 + 459.1*T+e

Option 2

Table 9. Log(Y1) vs log(X2) ,T

Dependent Variable: LOG(Y1)
Sample: 1 24
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.100073	0.517407	5.991558	0.0000
LOG(X2)	0.719608	0.090666	7.936926	0.0000
T	0.059469	0.007947	7.483263	0.0000

R-squared	0.974305	Mean dependent var	8.593341
Adjusted R-squared	0.971858	S.D. dependent var	0.844491
S.E. of regression	0.141669	Akaike info criterion	-0.954176
Sum squared resid	0.421473	Schwarz criterion	-0.806919
Log likelihood	14.45011	Hannan-Quinn criter.	-0.915109
F-statistic	398.1363	Durbin-Watson stat	1.366747
Prob(F-statistic)	0.000000		

LOG(Y1) = 3.1 + 0.72*LOG(X2) + 0.059*T+e

Option 3

D(Y1) vs D(X2)

Table 10. D(Y1) vs D(X2), Dependent Variable: D(Y1)

Dependent Variable: D(Y1)
Sample (adjusted): 2 24
Included observations: 23 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	309.2248	159.0049	1.944749	0.0653
D(X2)	3.995454	1.149190	3.476755	0.0023
R-squared	0.365325	Mean dependent var		464.7348
Adjusted R-squared	0.335103	S.D. dependent var		897.4210
S.E. of regression	731.7680	Akaike info criterion		16.11175
Sum squared resid	11245173	Schwarz criterion		16.21048
Log likelihood	-183.2851	Hannan-Quinn criter.		16.13658
F-statistic	12.08783	Durbin-Watson stat		1.750160
Prob(F-statistic)	0.002252			

D(Y1) = 309.27 + 3.99*D(X2)+e

Threshold regression

Table 11. Dependent Variable: D(Y1), Method: Threshold Regression

Dependent Variable: D(Y1)
Method: Threshold Regression
Included observations: 22 after adjustments
Threshold type: Fixed number of globally determined thresholds
Threshold variable: D(Y1(-1))
Threshold value used: 374.3
Allow heterogeneous error distributions across breaks

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(Y1(-1)) < 374.3 -- 6 obs				
C	461.0792	149.8574	3.076786	0.0065
D(X2)	0.304909	1.203601	0.253331	0.8029
374.3 <= D(Y1(-1)) -- 16 obs				
C	245.0043	208.5951	1.174545	0.2555
D(X2)	5.467327	1.487048	3.676632	0.0017

Table 11...

R-squared	0.489519	Mean dependent var	462.2864
Adjusted R-squared	0.404439	S.D. dependent var	918.4610
S.E. of regression	708.8001	Akaike info criterion	16.12799
Sum squared resid	9043157.	Schwarz criterion	16.32636
Log likelihood	-173.4079	Hannan-Quinn criter.	16.17472
F-statistic	5.753627	Durbin-Watson stat	1.546715
Prob(F-statistic)	0.006094		

D(Y1) = (D(Y1(-1))<374.3)*(461.08 + 0.305*D(X2)) + (D(Y1(-1))>=374.3)*(245.0 + 5.467*D(X2))

Threshold Variable is D(Y1(-1)). Threshold value is D(Y1)=374.3. Period 1992-2015 is divided into two regimes: Regime 1: D(Y1(-1))<374.3 Regime 2: D(Y1(-1))>=374.3. In regime 1 effect of remittances is insignificant; in regime 2 it is significant. In regime 2 one dollar remittances is multiplied 5.467 times, roughly 5.5 times in terms of GDP increase.

Koyck Model

Table 12. Dependent Variable: Y1,vs X2,Y1(-1)

Dependent Variable: Y1
Sample (adjusted): 2 24
Included observations: 23 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-299.6470	333.6674	-0.898041	0.3798
X2	2.715396	0.573811	4.732215	0.0001
Y1(-1)	0.762024	0.050268	15.15914	0.0000

R-squared	0.981523	Mean dependent var	7388.670
Adjusted R-squared	0.979676	S.D. dependent var	4412.372
S.E. of regression	629.0441	Akaike info criterion	15.84739
Sum squared resid	7913929.	Schwarz criterion	15.99550
Log likelihood	-179.2450	Hannan-Quinn criter.	15.88464
F-statistic	531.2210	Durbin-Watson stat	2.080660
Prob(F-statistic)	0.000000		

Y1 = -299.6 + 2.72*X2 + 0.76*Y1(-1)+e

Short-Run multiplier of one dollar remittances is 2.72 dollars GDP. Decreasing rate of X2 effect on GDP is 0.76 or 76% per year; effect adjustment rate per year is 24%. Expected lag of effect is 4.1 years; long-run multiplier is 11.07.

Co integration analysis Y1 vs X2

Table 13. Engel-Granger Cointegration test, Series: Y1 X2

Series: Y1 X2
Sample: 1 24
Included observations: 24
Null hypothesis: Series are not cointegrated
Cointegrating equation deterministics: C
Automatic lags specification based on Schwarz criterion (maxlag=1)

Dependent	tau-statistic	Prob.*	z-statistic	Prob.*
Y1	-0.930830	0.9147	-2.294606	0.9177
X2	-1.422664	0.7925	-3.769243	0.8149

*MacKinnon (1996) p-values.

Y1 and X2 do not cointegrate; they are not long-term equilibrium.

Table 14. Cointegration Test - Engle-Granger, D(Y1) D(X2) C

Cointegration Test - Engle-Granger
Specification: D(Y1) D(X2) C
Cointegrating equation deterministics: C
Null hypothesis: Series are not cointegrated
Automatic lag specification (lag=0 based on Schwarz Info Criterion, maxlag=4)

	Value	Prob.*
Engle-Granger tau-statistic	-4.080964	0.0208
Engle-Granger z-statistic	-22.70239	0.0034

*MacKinnon (1996) p-values.

Co integrating equation for D(Y1) and D(X2)

Table 15. Dependent Variable: D(Y1), Method: Fully Modified Least Squares (FMOLS)

Dependent Variable: D(Y1)
Method: Fully Modified Least Squares (FMOLS)
Included observations: 22 after adjustments
Cointegrating equation deterministics: C
Long-run covariance estimate (Bartlett kernel, Newey-West fixed bandwidth = 3.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(X2)	4.544287	1.160613	3.915421	0.0009
C	290.0050	158.0241	1.835195	0.0814

R-squared	0.377985	Mean dependent var	462.2864	Table 15...
Adjusted R-squared	0.346885	S.D. dependent var	918.4610	
S.E. of regression	742.2593	Sum squared resid	11018978	
Long-run variance	518074.1			

D(Y1) = 4.54428735164*D(X2) + 290.0049967+e

Table 16. Cointegration Test - Engle-Granger, D(Y1) D(X2) C

Cointegration Test - Engle-Granger
Specification: D(Y1) D(X2) C
Cointegrating equation deterministics: C
Null hypothesis: Series are not cointegrated
Automatic lag specification (lag=0 based on Schwarz Info Criterion, maxlag=4)

	Value	Prob.*
Engle-Granger tau-statistic	-4.080964	0.0208
Engle-Granger z-statistic	-22.70239	0.0034

*MacKinnon (1996) p-values.

D(Y1) and D(X2) are in long-term equilibrium.

Error Correction Model (ECM)

Table 17. D(Y1,2), D(X1,2), E(-1)

Dependent Variable: D(Y1,2)
Method: Least Squares
Sample (adjusted): 3 23
Included observations: 21 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.803314	238.7195	-0.032688	0.9743
D(X1,2)	-17.37275	37.53997	-0.462780	0.6491
E(-1)	0.312937	0.345654	0.905348	0.3772

D(Y1,2) = -7.8 - 17.37*D(X1,2) + 0.31*E(-1)

D(Y1) and D(X2) have been all the time in long-rung equilibrium and no short-run equilibrium happened during the studied time period.

CONCLUSION AND POLICY IMPLICATIONS

Result is that GDP is influenced by remittances but not vice versa. Threshold Variable is D(Y1(-1)). Threshold value is D(Y1)=374.3 Period 1992-2015 is divided into two regimes: Regime 1: D(Y1(-1))<374.3 Regime 2: D(Y1(-1))>=374.3 In regime 1 effect of remittances is insignificant; in regime 2 it is significant. In regime 2 one dollar remittances is multiplied 5.467 times, roughly 5.5 times in terms of GDP increase. Short-Run multiplier of one dollar remittances is 2.72 dollars GDP. Decreasing rate of X2 effect on GDP is 0.76 or 76% per year; effect adjustment rate per year is 24%. Expected lag of effect is 4.1 years; long-run multiplier is 11.07. D(Y1) and D(X2) are in long-term equilibrium. D(Y1) and D(X2) have been all the time in long-rung equilibrium and no short-run equilibrium happened during the studied time period.

Our findings are consistent with general trend in the literature and the study indicated that remittances affect economic growth positively but not vice versa. So it is very important especially for Albania to attract remittances in order to achieve sustainable economic growth. In this regard it exhibits importance that the country should create an investment environment which has sufficient institutional infrastructure. The fact that different periods of times display different levels of efficiency reflected to economic growth, reveals differences in the existing structures and institutions as well as policies pursued. We need to be prepared to offer reintegration strategies for returning migrants and to nurture their newly acquired skills and capital. Options include making social benefits portable and designing programs that support returning migrants in making informed decisions about the use of their resources, supporting their desire to start businesses of their own. The highly skilled migration can become a positive factor in the development of country.

REFERENCES

Ahamada, I., Coulibaly, D. (2013) Remittances and growth in Sub-Saharan African countries: Evidence from a panel causality test, Journal of International Development, no.25, pp.310-324.

Ahamada, I., Coulibaly, D. (2013) Remittances and growth in Sub-Saharan African countries: Evidence from a panel causality test, Journal of International Development, no.25, pp.310-324.

Arı, A., Ozcan, B. (2012) İşçi gelirleri ve ekonomik büyüme ilişkisi: Dinamik panel veri analizi, Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, no. 38, pp. 101-117.

Chami, R., Fullenkamp, C., Jahjah, S. (2003) Are immigrant remittances flows a source of capital for development?, IMF Working Paper, no.189.

Chami, R., Fullenkamp, C., Jahjah, S. (2003) Are immigrant remittances flows a source of capital for development?, IMF Working Paper, no.189.

Dickey, D.A., Fuller, W.A. (1981) Distribution of the estimators for autoregressive time series with a unit root, Econometrica, no.49, pp.1057-1072.

Engle, R.F., Granger, C.W.J. (1987) Co-integration and error correction: Representation, estimation and testing, Econometrica, no.55(1), pp.251-276.

Giuliano, P., Ruiz-Arranz, M. (2009) Remittances, financial development, and growth, Journal of Development Economics, no.90, pp.144–152.

IMF (2005) World Economic Outlook: Globalization and External Imbalances, IMF:Washington.

Karagöz, K. (2009) Workers' remittances and economic growth: Evidence from Turkey, Journal of Yasar University, no.4(13), 1891-1908.

Kule D., A. Macellari, H. Papapanagos, S. Qirici and P. Sanfey, 2002, The causes and consequences of Albanian emigration during transition: Evidence from Micro Data, International Migration Review, 36(1): 229-239.

Lim, S., Simmons W.O. (2015) Do remittances promote economic growth in the Caribbean Community and Common Market?, Journal of Economics and Business, no.77, pp.42–59.

López, H., Molina, L., Bussolo, M. (2007) Remittances and the real exchange rate, World Bank Policy Research Working Paper, No. 4213, Washington: World Bank.

Nikas C. and R. King, 2005, Economic growth through remittances: lessons from the Greek experience of the 1960s applicable to the Albanian case, Journal of Balkan and Near Eastern Studies, 7(2): 235-257.

Nyamongoa, E.M., Misati, R.N., Kipyegon, L., Ndirangu, L. (2012) Remittances, financial development and economic growth in Africa, Journal of Economics and Business, no.62, pp.240– 260.

Nyamongoa, E.M., Misati, R.N., Kipyegon, L., Ndirangu, L. (2012) Remittances, financial development and economic growth in Africa, Journal of Economics and Business, no.62, pp.240– 260.

Pradhan, G., Upadhyay, M., Upadhyaya, K. (2008) Remittances and economic growth in developing countries, The European Journal of Development Research, no. 20(3), pp.497–506.

Ramey, G., Ramey, V.A. (1995) Cross-country evidence on the link between volatility and growth, American Economic Review, no. 85 (5), pp. 1138–1151.

Romer, David. 2012. Advanced Macroeconomics. 4th ed. New York: McGraw-Hill.

Woodruff, C.M., Zenteno, R. (2004) Remittances and micro enterprises in Mexico, Graduate School of International Relations and Pacific Studies Working Paper.

World Bank (2017) World development indicators, http://data.worldbank.org/data-catalog/world-development-indicators