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ECONOMETRIC ESTIMATION OF THE DETERMINANTS AND IMPACT OF REMITTANCES ON THE MACEDONIAN ECONOMY

JEL classification: C22, F29, J61, O11, O24

Abstract

Although Macedonia is among the top emigration countries in the world, and in spite of the fact that private transfers from abroad have covered more than 50% of the trade deficit in the last ten years, relatively little is known about the determinants of the remittances and their impact on the macroeconomic stability of the Macedonian economy. The purpose of our paper is to offer an econometric estimation of the determinants of remittances to Macedonia and to investigate whether remittances sent to Macedonia have a stabilizing or destabilizing effect on the Macedonian economy, especially in time of financial shocks. To achieve this objective, we estimate a vector autoregressive (VAR) model using the available monthly data on migrant workers' remittances as a dependent variable and industrial output, gross wages, unemployment rate, consumer price indices, trade deficit, total imports and loans to private sector as independent variables in a long period (January 2005 - December 2012). We find evidence that remittances sent to Macedonia have a procyclical character meaning that they act as a boost to economic activity in times of economic upturns, and as a destabilizing factor to the Macedonian economy in times of economic downturns.

Keywords: remittances, migration, vector autoregressive model

1. INTRODUCTION

Macedonia has a long history of emigration and is among the top emigration countries in the world, with almost 22% of the total population emigrating to other countries in the world (World Bank, 2010). The top five countries where Macedonia citizens usually emigrate are Australia, Germany, USA, Switzerland and Italy (see Figure 1).

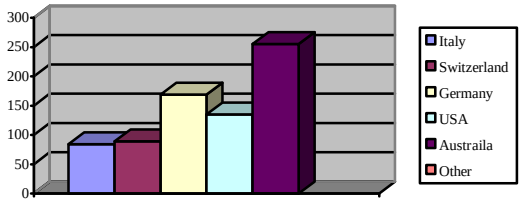

Figure 1: Emigrated citizens of the Republic of Macedonia by countries in 2011

Source: *State statistical office of the Republic of Macedonia, Statistical review: Population and social statistics, Migrations, 2011, pp. 86-87.*

With such a high proportion of emigrant population relative to the total population of the country, remittances sent by migrant workers have become crucial to maintaining the macroeconomic stability of the Macedonian economy. Adding to the importance of remittances at a macro level, remittances are a significant source of external funding for many households, particularly in times of economic hardships.

However, relatively little is known about the determinants of the remittance inflows to Macedonia and their impact on the macroeconomic stability of the country.

The purpose of our paper is to offer an econometric estimation of the macroeconomic determinants of remittances to Macedonia and to investigate whether remittances sent to Macedonia have a stabilizing or destabilizing effect on the Macedonian economy, especially in time of financial shocks, such as the latest global economic and financial crisis 2008/2009.

To achieve this objective, we estimate a vector error correction (VEC) model using the available monthly data from the National Bank of the Republic of Macedonia and the State Statistical Office on migrant workers' remittances per capita as a dependent variable and industrial production index, total average monthly gross wage paid in US Dollars, unemployment rate, consumer price index, trade deficit, total imports, trade deficit and totals loans extended to private sector as independent variables for a long period, starting from January 2005 until December 2012 (96 observations), which makes the obtained results reliable.

2. SOME FACTS AND TRENDS

The state and trend of migrant workers' remittance inflows to Macedonia is broadly in line with the trend observed in global remittance flows and the trend of remittance inflows to developing countries.

Migrant workers' remittances inflows to Macedonia have been constantly growing in the period 2000-2011 (Figure 2) averaging 257,99 million US dollars annually. It should be noted that these figures are official figures provided by the National Bank of the Republic of Macedonia. However, the World Bank suggests that remittances sent through informal channels could add at least 50% to the official estimate (World Bank, 2006).

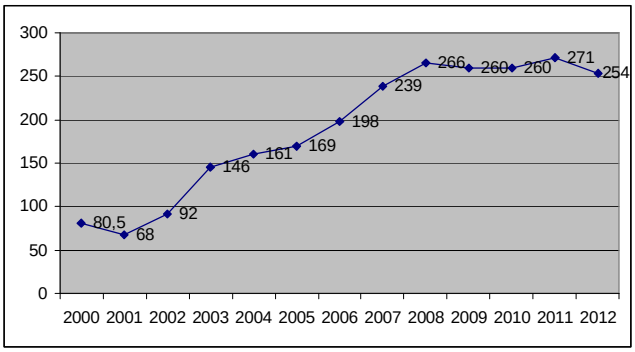

Figure 2: Migrant workers' remittance inflows in Macedonia in million of US dollars, 2000-2012

Source: www.nbrm.gov.mk

This is line with the data on remittances in other EU candidate and potential candidate countries in the region (with exception of Serbia) in the years before, during and after the global financial crisis of 2008 (see Figure 3).

In the same period the inward remittances per capita in Macedonia also have been showing a tendency to increase, from 683 US Dollars in 2007 to 976 US Dollars in 2011 (see Figure 4). From Figure 4 we can see that they are the highest in the group of the EU candidate and potential candidate countries in Western Balkan (976,4 US Dollars per capita) and have achieved the highest rate of growth (43%) among these countries in the period 2007-2011.

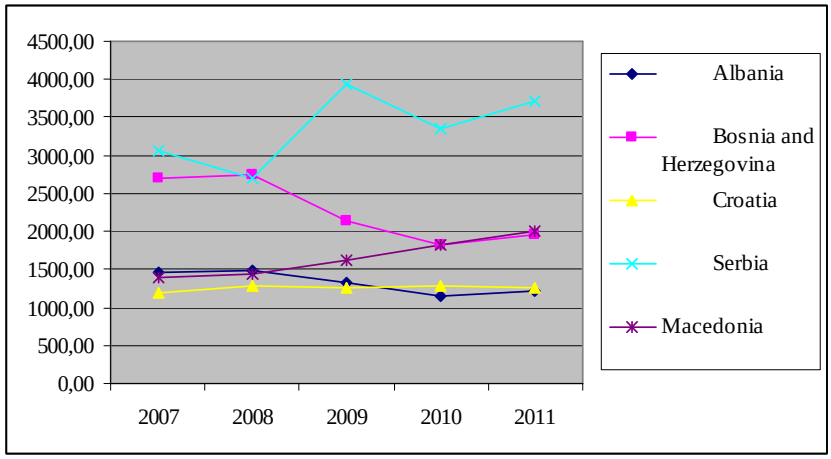

Figure 3: Total remittance inflows[‡], annual, 2007-2011 in millions of US dollars in EU candidate and potential candidate countries

Source: www.nbrm.gov.mk and http://data.worldbank.org/data-catalog/migration-and-remittances

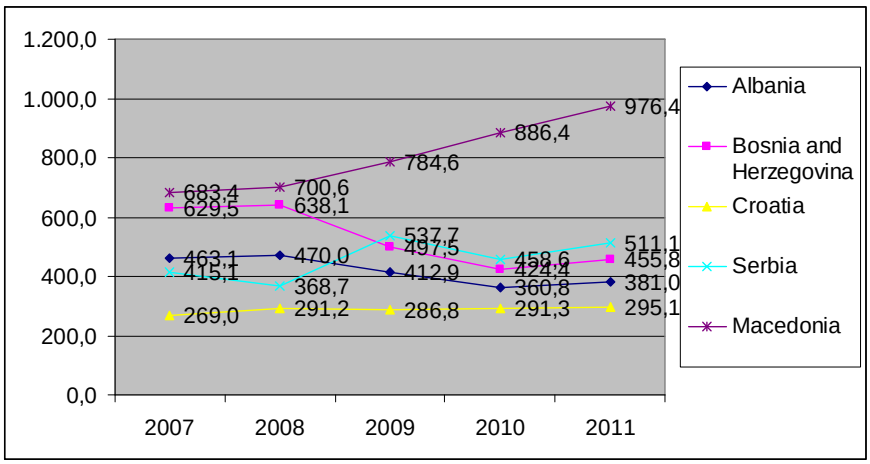

Figure 4: Per capita remittance inflows[§] in US Dollars in selected EU candidate and potential candidate countries, 2007-2011

Source: www.nbrm.gov.mk and http://data.worldbank.org/data-catalog/migration-and-remittances

[‡] The World Bank definition of remittances is broader that the one of the National Bank of the Republic of Macedonia and includes workers' remittances, compensation of employees and migrant transfers.

[§] As defined by the World Bank.

Regarding the share of remittance inflows in the total GDP in selected EU candidate and potential candidate countries, 2007-2011, total remittances to Macedonia have participated with 17,5% on average in the total Macedonian GDP and exhibit the highest share in GDP in the Western Balkan countries (see Figure 5).

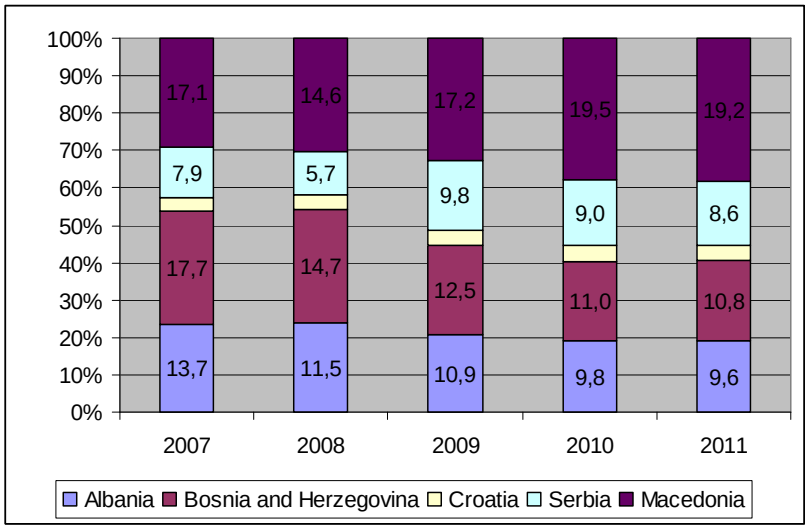

Figure 5: Share of total remittance inflows** in GDP (in %) in selected EU candidate and potential candidate countries, 2007-2011

Source: www.nbrm.gov.mk and http://data.worldbank.org/data-catalog/migration-and-remittances

Although at the beginning of the recent global financial and economic crisis, it was thought that the current crisis will not affect Macedonia because it had no exposures to the US real estate market and because of the completely different structure of the Macedonian real estate market, Macedonia, like all other countries in Eastern and South Eastern Europe countries, has also been drawn in the severest crisis since the chronic days of the Great Depression via the trade and the capital flow channel. The global financial crisis started affecting the economy in the fourth quarter of 2008, led by a decline in the output of the metal and textile sectors. The macroeconomic situation deteriorated further in 2009 as industrial production contracted by 7.7 per cent compared with 2008, while foreign trade dropped significantly and inward FDI flows to Macedonia have decreased sharply, falling from 587 million of US Dollar in 2008 to 197 million of US Dollars in 2009, which represents a decline of 66 per cent. In contrast to the FDI inflows, migrant workers' remittance inflows have decreased by only 2%

** As defined by the World Bank.

(see Figure 5) and remained a stable and significant source of external funding for the Macedonian economy.

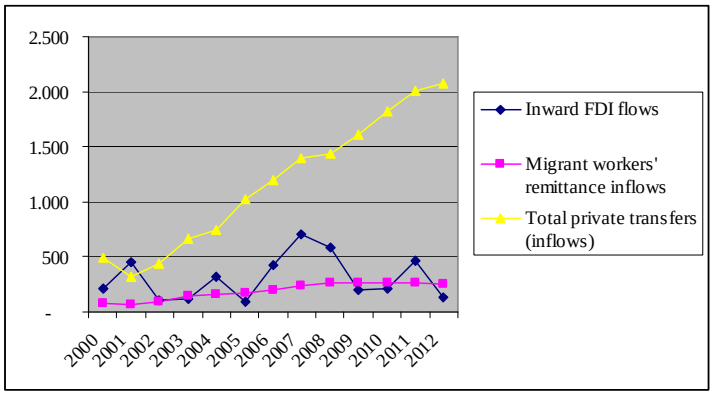

Figure 6: Migrant workers' remittance inflows and total private transfers (inflows)[††] versus inward foreign direct investment in million of US Dollars in Macedonia, 2000-2012

Source: *www.nbrm.gov.mk*

Their role in external financing has come to a light even more with the global financial crisis of 2008. Remittances have helped to increase or maintain the foreign exchange reserves at the same level, as well as for decreasing the current account deficits through covering the large trade deficit (see Figure 7).

[††] The private transfers consist of: remittances, cash exchanged and other transfers of which the most are rents. The source of data is the ITRS. Cash exchanged on the exchange market in accordance with the BPM5 should be classified in the capital and financial account of the balance of payments. However, regarding the fact that the largest part of these assets originates from the residents' receipts from non-residents on the basis of provided goods and services (unrecorded transactions) and transfers received in cash foreign currency, these transactions are recorded as a part of the balance of payments' current account (private transfers).

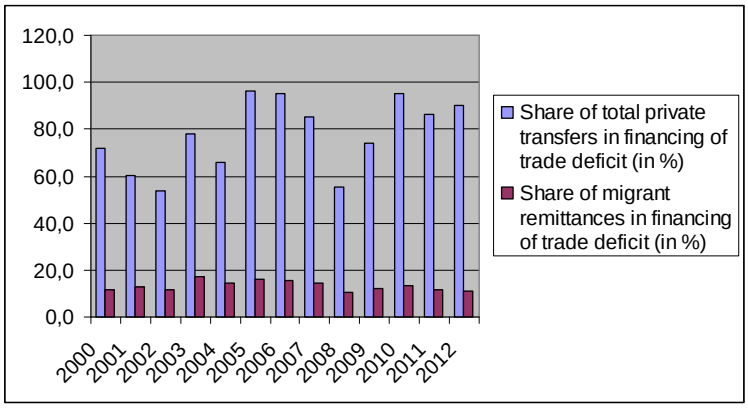

Figure 7: Share of total private transfers and migrant workers' remittances (in %) in financing the Macedonian trade deficit of goods, 2000-2012

Source: *www.nbrm.gov.mk*

Given the persistent problems in the Macedonia's trade balance and balance of payment, on one hand and the important role that private transfers have played in financing between 80-90 percent of the Macedonian trade deficit, it is of utmost importance to determine the key factors that affect the decision of migrant workers to remit money to their families left behind in Macedonia. In the economic literature as well as in the empirical research it is widely believed that migrants' remittances are motivated by altruism (Rapoport and Docquier, 2005) and as such are expected to move countercyclical to the GDP in the recipient country. Ratha (2003) also corroborates the point that migrants may also increase remittances in times of economic hardship. However, since the decision to remit money is influenced not only by altruism, but by a number of determinants, it is conceivable that remittances may be procyclical or even acyclical with the GDP in some of the recipient countries (Sayan, 2006).

When they are countercyclical with the business cycle of the recipient country, they serve as a macroeconomic stabilizer. On the other hand when they are procyclical they may act as a destabilizing effect by amplifying cyclical fluctuations in GDP (Sayan and Tekin-Koru, 2007).

It is therefore important to find out if remittances sent to Macedonia have a stabilizing or destabilizing effect on the Macedonian economy, especially in time of financial shocks, such as the latest global economic and financial crisis 2008/2009.

3. DATA, MODEL AND FINDINGS

In order to investigate whether the migrant workers' remittances sent to Macedonia (REMITTANCESPC further in text) are countercyclical or procyclical with macroeconomic conditions in the home country (Macedonia), we will estimate a vector error correction (VEC) model (the VEC model is the appropriate model due to the fact that most of the variables are nonstationary and cointegrated) using the available monthly data from the National Bank of the Republic of Macedonia on migrant workers' remittance inflows per capita as a dependent variable and industrial production index, total average monthly gross wage paid in US Dollars, unemployment rate, consumer price index, trade deficit, total imports, trade deficit and totals loans extended to private sector as independent variables for a long period, staring from January 2005 until December 2012 (96 observations), which makes the obtained results reliable.

The selection of the explanatory variables is based on the previous empirical studies on the macroeconomic determinants of remittances (Schiopu, I. and Siegfried, N., 2006; Vargas-Silva and Huang, 2005; Schrooten, 2005). These studies usually focus on the number of workers, wage rates and economic situation in host country, economic situation in country of origin, the exchange rates and relative interest rate between the sending and receiving country and political risk and facilities to transfer funds (i.e. institutions).

The monthly index of industrial production (output) (further in text INDINDEX) is taken as a proxy for the state of the economic activity in the migrants' home country. The monthly indices on industrial production for Macedonia are obtained from the State Statistical Office of the Republic of Macedonia. A number of empirical studies (e.g. El‐Sakka and McNabb, 1999; De la Brière et al., 2002) suggest that remittances have a negative correlation with the previous month's industrial output. Lower economic activity in periods of shocks, may increase the need for remittances to be sent, which may induce current migrants to send money or cause migration in the first place. This finding can be interpreted as evidence of counter cyclical behaviour of remittances. On the other hand, Aydaş et al. (2004) argue that remittance flows tend to increase following respectively the rise of the GDP per capita and the growth rate of the home country (procyclical behaviour).

Monthly unemployment rate UNEMP) and monthly gross wages in denars (WAGEDENARS) are taken as proxies for the labour market situation in the home country. The monthly unemployment rates as well as the average monthly gross wages in Macedonia are obtained from the State Statistical Office of the Republic of Macedonia. The higher unemployment rate in the home country can be expected to increase the incentives for migration which may consequently cause increase of remittances. According to Hagen-Zanker and Siegel (2007) "the level of development of the households' community also plays an important role here. While bad economic situation and high unemployment may be a cause for migration, the household's community needs to have a certain level of development for investment by the household to be effective.

Consequently it is possible fewer remittances are sent to underdeveloped countries."

Lower gross wages in the home country can be expected to increase the incentives to remit money home, and consequently negative sign is expected for this explanatory variable. However, as Cox, Eser and Jimenez (1998) demonstrate, income may have a different effect at different points of the income distribution. The motive may even change at different points of the income distribution.

The impact of inflation (proxied by consumer price index - CPI) on migrant workers remittances is also ambiguous. Higher inflation rates would cause remittance inflows to decline suggesting that inflation acts as a proxy for macroeconomic instability and risks and therefore discourages the inflow of remittances. Since high inflation rate affects negatively the purchasing power of the migrant workers' families in the home country, remittances may increase in order to compensate for the loss of purchasing power which is in line with the altruism motive for remitting money. The monthly data on consumer price index in Macedonia are taken from the United Nations Economic Commission for Europe.

Lower domestic credits to private sector (LOANS) might have a positive impact on remittance dynamics, since remittances are considered an alternative in case of a lack of domestic credits in the developing countries. Therefore, a negative sign is expected for this explanatory variable.

According to Loser et al. (2006), remittance inflows to a migrant's home country are expected to encourage the domestic demand for tradable goods (TRDEFICIT). As domestic demand increases because of the purchasing power of remittances, domestic prices and wages will tend to rise, resulting in a real appreciation of the local currency. "This phenomenon would result in a loss of competitiveness for some exports and import substitutes, and thus in an increase in imports and lower exports as well." (Loser et al., 2006) In any circumstance, this will have an impact on the trade deficit increase, so that the deficit is growing fast (a positive sign).

On the other hand, we should consider the nostalgic expenditure of emigrants described by Orozco (2004) who will also increase their travel and purchase of goods in the home country Overall, the effect of the remittances plus the nostalgic expenditure of emigrants on the balance of payments of the home country in a first round will be positively offset by the increase in imports (and decrease in exports) as demand for both domestic and foreign goods grows.

The above explained behaviour of imports has a direct influence on the behaviour and expected sign of the trade deficit, as an explanatory variable of remittance inflows to the home country.

After explaining the expected signs of the explanatory variables that enter our model of remittance inflows per capita, we first test for the presence of

unit roots in the macroeconomic time series using the augmented Dickey-Fuller test and find that remittances per capita are stationary, import, industrial index and trade deficit are trend stationary, and the other series are integrated of order one except loans which are integrated of order two, i.e. I(2). To determine the appropriate lag length we start with 9 lags and subsequently eliminate lags with insignificant coefficients. The choice of model, that is whether to include an intercept or time trend, is based on the approach of Doldado et.al., (1990). Under this approach, one starts with the least restrictive of plausible models (the test equation includes both the trend and intercept) and then introduces restrictions until the null hypothesis of a unit root is rejected (if at all).

Table 1: Unit root test of the series

	LEVEL			FIRST DIFFERENCE		
	t-ADF	model*	lags	t-ADF	model	lags
REMITPC***	-3.998740§	2	11			
INDINDEX***	-5.773984‡‡	1	11			
IMPORT***	-4.328905**	1	11			
CPI****	-2.625886§§	1	11	-6.962157	1	11
TRDEFICIT***	-6.462819**	1	11	-4.730682	1	11
UNEMP****	-3.092646**	1	11	-10.23112	1	11
WAGE****	-1.328206**	1	11	-8.909542	1	11

* Model 1 includes both intercept and trend in test equation, while model 2 includes intercept but no trend, model 3 does not include any of them.

*** Variables have unit root in levels

**** Variables have unit root in first difference, i.e integrated of order 1, I(1)

A graph of the series is shown in Figure 8. All series, except unemployment rate and wages, clearly move in a similar way in time.

§ Test critical values at 1% level is -3.510259

‡‡ Test critical values at 1% level is -4.057528

§§ Test critical values at 1% level is -4.058619

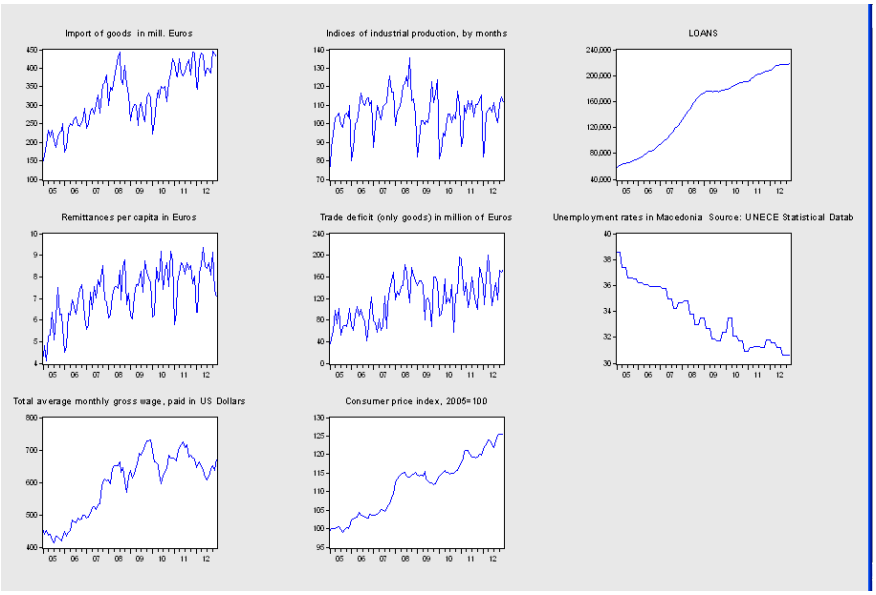

Figure 8: Graph of the series

Source: Author's own calculations

The next step is to test if there is a cointegration among the variables applying Johansen procedure (see Table 2). We use one lag to preserve sufficient degrees of freedom. Both the trace statistic and the maximum eigenvalue statistic confirm the existence of five cointegration relationships between remittances per capita, indices of industrial production, import, trade deficit, wages, loans, consumer price index in Macedonia and unemployment rate in Macedonia.

Table 2: Johansen cointegration test

Date: 05/15/13 Time: 19:35
Sample: 2005M01 2012M12
Included observations: 91
Series: REMITTANCESPC IMPORT INDINDEX D(IMPORTCONS) D(LOANS,2) D(CPI) TRDEFICIT D(UNEMP) D(WAGE)
Lags interval: 1 to 2

Selected (0.05 level*) Number of Cointegrating Relations by Model	

Data Trend:	None	None	Linear	Linear	Quadratic
Test Type	No Intercept No Trend	Intercept No Trend	Intercept No Trend	Intercept Trend	Intercept Trend
Trace	5	6	6	6	9
Max-Eig	4	3	3	3	4

*Critical values based on MacKinnon-Haug-Michelis (1999)

The estimated OLS regression equation is shown in Table 3.

Table 3: Estimated OLS regression

Dependent Variable: LOG(REMITTANCESPC)
Method: Least Squares
Date: 05/17/13 Time: 11:42
Sample (adjusted): 2005M03 2012M12
Included observations: 94 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.758990	0.283653	-2.675766	0.0089
D(CPI)	-0.017245	0.014635	-1.178338	0.2420
LOG(IMPORT)	0.380494	0.091904	4.140113	0.0001
INDINDEX	0.003026	0.001190	2.543976	0.0128
D(LOANS,2)	6.79E-06	1.14E-05	0.595363	0.5532
LOG(TRDEFICIT)	-0.101936	0.050465	-2.019918	0.0465
D(UNEMP)	-0.022420	0.031978	-0.701131	0.4851
D(WAGE)	0.000976	0.000604	1.614864	0.1100
LOG(REMITTANCESPC(-1))	0.357671	0.088395	4.046267	0.0001

R-squared	0.655269	Mean dependent var	1.973481
Adjusted R-squared	0.622824	S.D. dependent var	0.167296
S.E. of regression	0.102744	Akaike info criterion	-1.622303
Sum squared resid	0.897291	Schwarz criterion	-1.378796
Log likelihood	85.24825	Hannan-Quinn criter.	-1.523944
F-statistic	20.19612	Durbin-Watson stat	1.722849
Prob(F-statistic)	0.000000		

Source: Author's own calculations

In order to see if this static relation is a long-run equilibrium relationship, and not just a spurious regression we have to test if the OLS residuals have a unit root, which implies that they are not stationary and the

variables are not cointegrated, i.e. to implement the first phase of Engle-Granger procedure. The results of this test are given in Table 4.

Table 4: Dickey-Fuller t-test applied on the remittance residuals

Null Hypothesis: RESID02 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=11)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.065868	0.0000
Test critical values:	1% level	-3.502238	
	5% level	-2.892879	
	10% level	-2.583553	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RESID02)
Method: Least Squares
Date: 05/16/13 Time: 22:51
Sample (adjusted): 2005M04 2012M12
Included observations: 93 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID02(-1)	-0.915575	0.100991	-9.065868	0.0000
C	0.002869	0.009798	0.292854	0.7703

R-squared	0.474565	Mean dependent var	0.001409
Adjusted R-squared	0.468791	S.D. dependent var	0.129620
S.E. of regression	0.094472	Akaike info criterion	-1.859756
Sum squared resid	0.812171	Schwarz criterion	-1.805291
Log likelihood	88.47865	Hannan-Quinn criter.	-1.837765
F-statistic	82.18995	Durbin-Watson stat	1.996852
Prob(F-statistic)	0.000000		

Source: Author's own calculations

We can conclude that the null hypothesis of no cointegration can be rejected even at level of significance of 0%, meaning that the model is a long-run equilibrium relationship.

In order to study the cause-effect pattern of relationship between the remittance inflows and consumer goods imports, as the macroeconomic indicator that exhibits highest correlation with remittances (r=0.692739), and to distinguish between long and short-run effects (multipliers), we use a vector autoregressive (VAR) model. First, we need to determine the order of VAR model using different information criteria.

Table 5: Lag length determination

VAR Lag Order Selection Criteria
Endogenous variables: LOG(REMITTANCESPC) LOG(IMPORT)
Exogenous variables: C
Date: 05/16/13 Time: 23:03
Sample: 2005M01 2012M12
Included observations: 88

Lag	LogL	LR	FPE	AIC	SC	HQ
0	73.49459	NA	0.000675	-1.624877	-1.568574	-1.602194
1	144.0005	136.2046	0.000149	-3.136375	-2.967465*	-3.068325
2	145.3902	2.621592	0.000158	-3.077051	-2.795535	-2.963635
3	152.4525	13.00098	0.000147	-3.146648	-2.752526	-2.987866
4	163.2364	19.36204*	0.000127	-3.300828	-2.794100	-3.096680*
5	168.5479	9.295150	0.000123	-3.330635	-2.711301	-3.081121
6	173.8330	9.008694	0.000120*	-3.359842*	-2.627901	-3.064961
7	176.2710	4.044832	0.000124	-3.324341	-2.479795	-2.984095
8	177.4440	1.892819	0.000133	-3.260092	-2.302939	-2.874479

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Source: Author's own calculation

According to Schwarz criteria we are going to select VAR of second order as an optimal model. The estimated VAR model with two lags proves that

there is a very strong adjustment process of total goods imports to the remittance inflow.

Table 6: VAR model

Vector Autoregression Estimates
Date: 05/16/13 Time: 23:02
Sample (adjusted): 2005M03 2012M12
Included observations: 94 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	LOG(REMITTANCESPC)	LOG(IMPORT)
LOG(REMITTANCESPC(-1))	0.539847	0.179409
	(0.12016)	(0.11332)
	[4.49281]	[1.58324]
LOG(REMITTANCESPC(-2))	-0.000719	-0.109885
	(0.12120)	(0.11430)
	[-0.00593]	[-0.96137]
LOG(IMPORT(-1))	0.025782	0.703689
	(0.12685)	(0.11963)
	[0.20325]	[5.88223]
LOG(IMPORT(-2))	0.102833	0.128500
	(0.11959)	(0.11279)
	[0.85985]	[1.13933]
C	0.174457	0.837644
	(0.32621)	(0.30764)
	[0.53480]	[2.72283]
R-squared	0.483840	0.779867
Adj. R-squared	0.460642	0.769974
Sum sq. resids	1.343498	1.194877
S.E. equation	0.122864	0.115869
F-statistic	20.85680	78.82543
Log likelihood	66.27663	71.78658
Akaike AIC	-1.303758	-1.420991
Schwarz SC	-1.168476	-1.285710
Mean dependent	1.973481	5.751674
S.D. dependent	0.167296	0.241589
Determinant resid covariance (dof adj.)		0.000158
Determinant resid covariance		0.000141

Log likelihood	149.8673
Akaike information criterion	-2.975900
Schwarz criterion	-2.705337

Source: Author's own calculation

By eliminating all lags except the dependent variable's one, the estimated model of remittances (see Table 3) can be interpreted as a habit formation model: The past level of remittances has a significantly positive coefficient, and the long-run elasticity to import (0.592366) is exceeding by far the short-run elasticity (0.380494).

The impulse response function illustrates how remittances react to one standard deviation shock in total imports of goods before they are forced back on to their long-term path. The responses to the shocks, except the own ones, are small and they die away gradually.

The conclusion from the variance decomposition is that the behavior is observed to settle down to a steady state after ten periods (months). The percentage of the errors that are due to own shocks is around 95% for remittance per capita, while it is around 70% for the total import of goods.

On the other hand, the total import of goods explains only 4,81% of the variation in migrant workers' remittance inflows per capita, while remittances per capita explain 35% of the variation in total imports of goods.

The correlation between the stationary remittance inflows with the monthly indices of industrial production taken as a proxy for the economic activity shows a positive moderate correlation (0,5227), while the correlation with gross wages in US Dollars is very small and insignificant, but also positive (0,0713).

This result can be interpreted as an evidence of the procyclical nature of migrant worker's remittance inflows to Macedonia. Namely, in months when the economic activity in the country is boosting, and consequently the wages are increasing, the remittance inflows to Macedonia are also increasing, which could be an indication that remittances in Macedonia are directed towards investment and economic growth of the country, and not towards consumption. This conclusion also arises from the fact that the highest correlation exists found between migrant workers' remittance inflows per capita and the total import of goods, and not with import of consumer goods.

4. CONCLUSION

Contrary to the theoretically plausible counter cyclical argument of remittance flows to emerging market economies, our econometric analysis has shown that migrant workers' remittance inflows to Macedonia are positively and strongly correlated with Macedonian economic activity, suggesting that they are profit driven, and not by altruism or insurance considerations The procyclicality of remittances to Macedonia that remittances could not cushion large fluctuations in Macedonian output in times of recession or economic downturn.

These findings have important policy implications. First, due to the procyclical behaviour, remittances can not be a substitute for good economic policies and structural reforms. Second, given the important economic benefits of remittances to Macedonia and the fact that they are far more stable source of external financing unlike FDI, Macedonian government should refocus from motivating the foreign investors to invest in Macedonia to maximizing the developmental impact of remittances in Macedonia by offering more investment opportunities to Macedonian emigrants, especially to those ones who wish to return to Macedonia and start their own business.

REFERENCES

Aydaş, O., Neyapti, T. B. and Metin‐Özcan, K. (2004), *Determinants of Workers' Remittances: The Case of Turkey*, Working Paper, Bilkent University, Ankara.

Cox, D., Eser, Z., & Jimenez, E. (1998). Motives for private transfers over the life cycle: An analytical framework and evidence for Peru. *Journal of Development Economics, 55*(February), 57-80.

De la Briere, B., Sadoulet, E., De Janvry, A. and Lambert, S. (2002), The Roles of Destination, Gender and Household Composition in Explaining Remittances: An Analysis for the Dominican Sierra, *Journal of Development Economics*, Vol. 68, 309‐328.

Dolado, J., Jenkinson, T. and Sosvilla Rivero, S., (1990). Cointegration and Unit Roots, *Journal of Economic Survey*, 4, 249-273.

El-Sakka, M. I. T. and McNabb, R. (1999). The Macroeconomic Determinants of Emigrant Remittances, *World Development*, Vol. 27, No. 8, 1493-1502.

Hagen-Zanker, J. and Siegel, M., (2007). *The Determinants of Remittances: A Review of the Literature*, Maastricht University, Maastricht Graduate School of Governance, p. 7.

Jovicic, M. and Dragutinovic-Mitrovic, R., (2006), *Macroeconomic Analysis of Causes and Effects of Remittances: A Panel Model of the SEE countries and a Case Study of Serbia*, Paper presented at the GDN Southeast Europe WIIW workshop, May 5-6, 2006.

Loser, C., Lockwood, C., Minson, A. and Balcazar, L. (2006). *The Macro-Economic Impact of Remittances in Latin America - Dutch Disease or Latin Cure?* Presented at the G-24 Technical Group meeting in Singapore on September 13-14.

Orozco, M. (2004). Determinants of remittance transfers: The case of the Dominican Republic, January 1999 to September 2003." *Draft research notes on determinants of remittances project*, January 2, 2004.

Rapoport, H. and Docquier, F., (2005), The Economics of Migrants' Remittances, *IZA Discussion Paper No. 1531*, Bonn, March 2005, p. 11-13.

Ratha, D., (2003), Workers' Remittances: An Important and Stable Source of External Development Finance, in *Global Development Finance: Striving for Stability in Development Finance*, Washington, DC: World Bank, 157-175.

Sayan, S., (2004), Guest Workers' Remittances and Output Fluctuations in Host and Home Countries: The Case of Remittances from Turkish Workers in Germany, *Emerging Markets Finance and Trade*, Vol. 40(6), 70-84.

Sayan, S., (2006), Business Cycles and Workers' Remittances: How Do Migrant Workers Respond to Cyclical Movements of GDP at Home? *IMF Working Papers* No. 52, http://www.imf.org/external/pubs/ft/wp/w006/wp0652, Assessed on 20th January 2011.

Sayan, S. and Tekin-Koru, A., (2007), Remittances, Business Cycles and Poverty: The Recent Turkish Experience, *MPRA Paper 6029*.

Sayan, S. and Tekin-Koru, A., (2007), Business Cycles and Remittances: A Comparison of the Cases of Turkish Workers in Germany and Mexican Workers in the US, *MPRA Paper No. 6030.*

Sayan, S. and Tekin-Koru, A., (2008a), The Effects of Economic Development and Policies in Host Countries on Workers' Remittances Receipts of Developing Countries: The Cases of Turkey and Mexico Compared" in Lucas et al (ed.), *The Impact of Rich Country Policies on Developing Economies*, London: Edward Elgar.

Schiopu, I. and Siegfried, N. (2006). Determinants of workers' remittances: Evidence from the European neighbouring region, European Central Bank Working papers, No. 688, October 2006

State Statistical Office of the Republic of Macedonia, *Statistical Yearbooks* for 2000-2011.

Vargas-Silva, C. and Huang, P. (2005). Macroeconomic Determinants of Workers' Remittances: Host vs. Home Country's Economic Conditions, *EconPapers: International Finance*, ideas.repec.org/p/wpa/wuwpif/0507007.html, Assessed on 2nd May 2013.

International Monetary Fund, (2005), Two Current Issues Facing Developing Countries: Workers Remittances and Economic Development, *World Economic Outlook*, 69-100.

World Bank, (2006), Economic implications of remittances and migration, *Global economic prospects, No. 34320.*

World Bank, (2011), Migration and Remittances Factbook 2011, Second Edition.

http://www.nbrm.gov.mk.html , Assessed on 8th May 2013.

http://www.stat.gov.mk.html, Assessed on 8th May 2013.

http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS.html, Assessed on 8th May 2013.

http://www.finance.gov.mk.html, Assessed on 8th May 2013.