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The impact of remittances on economic growth in Republic of Kosovo

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Abstract---In the following analysis, a much debated topic has been analyzed with regard to remittances and economic growth in Kosovo. The study is based on time series, quarterly data over the period 2010-2021. The methodology applied in the study is based on utilization of unrestricted VAR model and Granger Causality/Block exogeneity Wald test, in order to explore the direction of the causality between variables. Results show that there is bi-directional causality between remittances and economic growth in Kosovo in the short-run.

Keywords---Remittances, economic growth (GDP), Kosovo, VAR, Granger Causality.

1.0 Introduction

Over the past two decades, remittances have shown continual increase in Kosovo, from € 600 Million in 2004 to € 1.33 Billion USD in 2021 (CBK, 2022). Such an increase in the amount of remittance inflow is attributed to the high number of immigration of population, starting from the pre-war period and also in recent years. In the macroeconomic perspective, remittances prove to be highly important in low-income countries (i.e. underdeveloped countries and countries in transition), given the fact that aggregate demand is positively affected.

Remittances may affect the economy of the receiving country through different means. According to Giuliano and Ruiz-Aranz (2009) remittances are highly important to external financing for the receiving country, as well as: alleviating credit constraints, enhancing investment, and positively affecting economic growth. Remittances serve as an insurance mechanism during times of recession, through boosting consumption and increasing disposable income (Yang & Choi, 2007). However, remittances may have a downside by contributing to decreasing labor supply of the receiving country, known as the Dutch disease (Acosta et al., 2009).

Despite a large number of studies with regard to remittances and their impact on economic growth, there is still a consensus to be reached in terms of the sign and the size of the impact. Vast majority of the studies show a positive impact of remittances on economic growth, however there is a large number of studies that reveal statistically negative impact of remittances on growth. Nevertheless, there are studies that find statistically insignificance between the variables. Therefore, the following study attempts to reveal the impact of remittance on growth through empirical analysis for the case of Kosovo.

The analysis is comprised of the following sections: Sect. 2, the literature review. In this section, empirical studies are summarized that examine the relationship between remittances and economic growth. Section 3, represents the model and the methodology chosen for the analysis. Section 4, represents a detailed interpretation of results generated in the analysis. Finally, section 5 presents a brief summary and concluding remarks.

2.0 Literature Review

The impact of remittances on economic growth has been extensively researched from academics and also from policymakers. There is a large number of empirical studies on the impact of remittances on growth, ranging on various aspects of remittance. Some studies focus on motivation of remittance senders, while other studies analyze the cost of remittance. Most predominant studies remain on the impact of remittances on growth and poverty. For instance, Fayissa and Nsiah (2008) suggest that remittances enhance growth in countries where financial systems are not very strong by providing an alternative way to financing investment thereby overcoming liquidity constraints. Iqbal and Abdus (2005) reveal that GDP growth is positively correlated to remittances in case of Pakistan over the period 1972–2003. In addition, they find that remittances to be the third important source of capital for economic growth. In a slightly different study approach, Adams and Page (2005) find remittances to reduce the severity of poverty in the developing countries.

Pradhan et al. (2008), analyzed the impact of workers' remittances on economic growth through the utilization of panel data for 39 developing countries over the period 1980-2004. Results reveal that there is positive and significant impact of remittances on economic growth. A similar study was conducted by Ramirez (2013), whose analysis are based on panel data as well, whereas results reveal that there is positive and significant impact of remittances on real per capita GDP growth. Topxhiu and Krasniqi (2017), conducted analysis on remittance and

growth for six communist countries of Western Balkan (Albania, Kosovo, Macedonia, Montenegro, Bosnia and Herzegovina and Serbia) for the period 2005–2015, again; positive impact of remittances on economic growth were obtained. Contrary, Chami and Jahjah (2005), reveal that migrants remittances have negative impact on economic growth based on three facts: 1. Majority of remittances are spent on consumption; 2. Very small portion of remittance funds goes into saving and/or investment; 3. The ways in which remittances are saved and/or invested (i.e. housing, land and jewelry) is not typically productive for the economy.

Khurshid et al. (2020), in their analysis apply bootstrap Granger causality technique for 58 countries divided into low and middle income countries. Their findings reveal that Granger causality is running from remittances to economic growth in low and lower-middle income countries, whereas in the middle income countries there is weak evidence of causality. In addition, unidirectional causality running from remittances to growth were obtained by the following: Aboulez, 2015; Munir et al., 2016; Nyeadi and Atiga, 2014; Olubiyi, 2014. Unidirectional causality running from growth towards remittances was found in the study conducted by Ali et al. (2018). On the other hand, there are a number of studies that reveal bi-directional causality between the variables, meaning that causality is running both directions (Jouini, 2015; Ahmed and Hakim, 2017; Kumar and Vu, 2014 etc.) Contrary, Nyasha et al. (2020) find that there is no evidence of causality, neither in the short-run nor in the long-run between remittances and growth in the case of South Africa over the period 1970 to 2017. The literature provides inconclusive results as it pertains to the direction of causality between remittances and growth.

3.0 Model and Methodology

In order to examine the impact of remittance on economic growth in the case of Kosovo, the analysis are carried through the utilization of quarterly data over the period 2010 to 2021. In total there are 48 observations to be analyzed. Data are gathered from the Central Bank of Kosovo (CBK, Time series statistics). In this regard, the model to be estimated is presented in the following equation 1:

$$GDP_i = \alpha + \beta_2 REM_i \varepsilon_i \quad (1)$$

Where:

GDP= Gross Domestic Product data at constant price

Rem= remittances at constant price

β = coefficients of the independent variable.

Methodology

For the purpose of the analysis, the analysis on the relationship between remittances and economic growth is carried through the use of unrestricted VAR methodology. In this regard, the following econometric steps are tracked: Unit Root through the use of Augmented Dickey Fuller tests, lag length criteria and finally, VAR-Granger causality/Block exogeneity Wald test.

3.1 Unit Root tests

Initially, the analysis are performed for stationarity of the data. Majority of the time series data appear to be not stationary (i.e. have unit root), therefore Augmented Dickey Fuller (ADF) test is utilized. For both variables tests are carried to determine the order of integration considering intercept and combined intercept and trend. The aim of the unit root tests through ADF is to achieve the stationary of the data, integrated of the same order; whether at level, first difference or second difference. In this regard, the existence of unit root is recognized through the utilization of the following equation (2) that accounts for intercept and time trend:

$$\Delta Y_t = \alpha_0 + \alpha_1 t + \alpha_2 Y_{t-1} + \sum_{j=1}^p \alpha_j \Delta Y_{t-j} + \varepsilon_t \quad (2)$$

The hypothesis testing from the above equation is:

Ho: The series is non-stationary ($\alpha_1 = 0$)

Ha: The series are stationary ($\alpha_1 < 0$)

3.2 VAR tests

In order to examine the relationship between remittances and economic growth, the model is structured in a way that allows for variables to affect one another, which means that variables are treated symmetrically as endogenous. Vector Autoregressive model allows treating variables symmetrically as a generalization of the univariate autoregressive model for forecasting a vector of time series for remittance and economic growth in the analysis.

The following equation (3) is a representation of the starting point of the VAR model:

$$Y_t = \mu + A_1 y_{t-1} + \dots + A_p y_{t-p} + \varepsilon_t \quad (3)$$

where Y_t is a $n \times 1$ vector with an integration order $I(1)$ (first difference). Using order $I(1)$ of integration as indicated by the ADF tests, the VAR framework is specified as:

$$\Delta y_t = \mu + \Pi y_{t-1} + \sum_{i=1}^{p-1} \Gamma \Delta y_{t-i} + \varepsilon_t \quad (4)$$

For the purpose of the analysis the model examines whether remittances cause economic growth and observe how much of the current remittance could be explained by previous values of remittance and the same for economic growth.

3.3 Granger causality/Block Exogeneity Wald test

The Granger causality/Block Exogeneity Wald test is performed in order to measure whether inclusion of the lagged value of remittance is important in explaining the dynamics of economic growth in the short-run. Within the multivariate framework the essence is to examine the explanatory power of lag of remittance and GDP. The following equations 5 and 6 are utilized to explain such relationship:

$$\Delta X_t = \beta_0 + \sum_{i=1}^n \beta_1 \Delta X_{t-1} + \sum_{i=1}^m \beta_2 \Delta Y_{t-1} + \varepsilon_{1t} \quad (5)$$

$$\Delta Y_t = \delta_0 + \sum_{i=1}^n \delta_1 \Delta Y_{t-1} + \sum_{i=1}^m \delta_2 \Delta X_{t-1} + \varepsilon_{2t} \quad (6)$$

where B and δ are short-run parameters which will be tested using the Wald χ^2 test in the VAR model.

The null hypothesis for the test is that lagged values of remittance do not explain the variation in GDP (economic growth). The assumption is that remittance does not Granger cause GDP and vice-versa, GDP does not Granger cause remittance in the short-run. In this regard the analysis basis on probability lower than 5% probability parameter.

4.0 Results and analysis

4.1 Unit Root

Unit root tests are based on Augmented Dickey Fuller (ADF) technique In order to identify the order of integration. At level, considering scenarios of trend and trend and intercept, the null hypothesis are not rejected, meaning that data are not stationary and have unit root. On the other hand, when taking the first difference, both remittance and GDP become stationary at at 5% level of significance (i.e. probability <0.05). The null hypothesis of the data of the presence of unit root is rejected and the alternative is accepted; meaning that the order of integration I(1) is established. See table 1 and 2.

Table 1. GDP, first difference (constant & constant, linear trend)

Null Hypothesis: D(GDP) has a unit root Exogenous: Constant Lag Length: 6 (Automatic - based on SIC, maxlag=9)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-6.119737	0.0000
Test critical values:		
1% level	-3.605593	
5% level	-2.936942	
10% level	-2.606857	
*MacKinnon (1996) one-sided p-values. Null Hypothesis: D(GDP) has a unit root Exogenous: Constant, Linear Trend Lag Length: 6 (Automatic - based on SIC, maxlag=9)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-6.094794	0.0001
Test critical values:		
1% level	-4.205004	
5% level	-3.526609	
10% level	-3.194611	
*MacKinnon (1996) one-sided p-values.		

Table 2 Remittance, first difference (constant & constant, linear trend)

Null Hypothesis: D(REM) has a unit root Exogenous: Constant Lag Length: 6 (Automatic - based on SIC, maxlag=9)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.419816	0.0160
Test critical values:		
1% level	-3.605593	
5% level	-2.936942	
10% level	-2.606857	
*MacKinnon (1996) one-sided p-values.		
Null Hypothesis: D(REM) has a unit root Exogenous: Constant, Linear Trend Lag Length: 6 (Automatic - based on SIC, maxlag=9)		
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.063069	0.0143
Test critical values:		
1% level	-4.205004	
5% level	-3.526609	
10% level	-3.194611	
*MacKinnon (1996) one-sided p-values.		

After having established the order of integration, under the VAR model, analysis are carried to to identify the number of lags. All of the tests suggest that analysis proceed with 4 number of lags: LR test, FPE test, AIC, SC, and HQ. Table (3) presents the lag length criteria for the following VAR model:

Table 3. Lag length criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-511.221...	NA	46385522	23.32824	23.40934	23.35831
1	-474.017...	69.33502	10258591	21.81896	22.06226	21.90918
2	-461.853...	21.56205	7089457.	21.44790	21.85340	21.59828
3	-437.297...	41.29948	2794644.	20.51352	21.08121	20.72405
4	-408.164...	46.34809*	897220.1*	19.37110*	20.10100*	19.64179*

* 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

After having established the order of integration, tests were conducted for Johansen cointegration. Results reveal that there is no relationship between variables in the long-run, meaning that data are not cointegrated at 5% level of significance through the use of Trace test. Therefore, analysis are conducted based on unrestricted VAR.

Table 4. Johansen Cointegration test

Date: 07/18/22 Time: 14:30
 Sample (adjusted): 2011Q2 2021Q4
 Included observations: 43 after adjustments
 Trend assumption: Linear deterministic trend
 Series: REM GDP
 Lags interval (in first differences): 1 to 4

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.257678	13.42269	15.49471	0.1002
At most 1	0.014083	0.609868	3.841465	0.4348

Trace test indicates no cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

4.2 VAR-Granger Causality/Block exogeneity Wald test results

In order to avoid the issue of autocorrelation of the coefficients, 4 lag structure is applied under the VAR model, accounting for the I(1) order of integration of the data. For each equation we obtain four lagged coefficients and the constant which in total accounts for 18 coefficients. Figure 5 represents the VAR model and the corresponding t-statistics for each coefficient.

Table 5. VAR model and the corresponding t-statistics

Vector Autoregression Estimates
Date: 07/18/22 Time: 14:33
Sample (adjusted): 2011Q2 2021Q4
Included observations: 43 after adjustments
Standard errors in () & t-statistics in []

	REM1	GDP1
REM1(-1)	-0.078121 (0.13876) [-0.56300]	0.770706 (0.81554) [0.94502]
REM1(-2)	-0.047767 (0.12413) [-0.38482]	0.831353 (0.72955) [1.13954]
REM1(-3)	-0.268753 (0.13269) [-2.02544]	1.030952 (0.77986) [1.32197]
REM1(-4)	0.662979 (0.13753) [4.82067]	2.730192 (0.80831) [3.37766]
GDP1(-1)	-0.088515 (0.02186) [-4.05006]	-0.192534 (0.12845) [-1.49889]
GDP1(-2)	-0.079212 (0.02410) [-3.28723]	-0.378874 (0.14163) [-2.67516]
GDP1(-3)	-0.070893 (0.02335) [-3.03663]	-0.221285 (0.13721) [-1.61271]
GDP1(-4)	-0.054759 (0.02544) [-2.15261]	0.505545 (0.14951) [3.38130]
C	8.620118 (2.39028) [3.60632]	12.60343 (14.0487) [0.89713]

Granger Causality/Block exogeneity Wald test under the VAR model, reveal that there is bi-directional causality among remittances and economic growth in Kosovo, which holds only for the short-run. Based on chi-square figures and probability, probability <5% in both equations is obtained, which means that the null hypothesis of no causality is rejected and accepted the alternative even at 1% level of significance.

Table 6. Granger causality/ Block exogeneity Wald test results

VAR Granger Causality/Block Exogeneity Wald Tests
Date: 07/18/22 Time: 14:33
Sample: 2010Q1 2021Q4
Included observations: 43

Dependent variable: REM1

Excluded	Chi-sq	df	Prob.
GDP1	23.82624	4	0.0001
All	23.82624	4	0.0001

Dependent variable: GDP1

Excluded	Chi-sq	df	Prob.
REM1	13.80527	4	0.0079
All	13.80527	4	0.0079

The null hypothesis in both cases is rejected and the alternative is accepted meaning that causality is running both directions. Therefore, results reveal that there is bi-directional causality between remittances and economic growth in Kosovo (i.e. remittance Granger causes growth and vice versa, growth Granger causes remittance).

5.0 Conclusion

In this paper, analysis were conducted regarding the impact of remittances and economic growth in Kosovo, over a twelve year period from 2010 to 2021. Data used in the analysis were time series quarterly data, which accounted for 48 observations in the model. Data employed in the analysis was GDP and remittances at constant price. The chosen model for the analysis is VAR that aimed at capturing the causality direction among the variables.

After having established the order of integration and the number of lags unrestricted VAR model was applied. Failing to establish cointegration among the variables, the analysis were limited into capturing only the short-run dynamics of Granger causality. Given the circumstance VAR Granger causality/Block exogeneity Wald tests were performed.

Results indicate that there is bi-directional causal relationship between the variables in the short-run, which means that causality is running both directions. Therefore, it is concluded that remittances Granger cause economic growth and vice versa; economic growth Granger causes remittances in Kosovo. There is a large number of studies in the literature that support bi-directional causal

relationship between remittances and economic growth given the fact that remittances are capable at stimulating consumption, increasing savings and increasing investments.

6.0 References

- Aboulezz, N. (2015). Remittances and economic growth nexus: Empirical evidence from Kenya. *International Journal of Academic Research in Business and Social Sciences*, 5, 285-296.
- Acosta, P. A., Lartey, E. K., & Mandelman, F. S. (2009). Remittances and the Dutch disease. *Journal of International economics*, 79, 102-116.
- Adams, R. H., & Page, J. (2005). Do international migration and remittances reduce poverty in developing countries? *World Development*, 33(10), 1645–1669.
- Ahmed, F. and Hakim, M., 2017. The relationship between remittances and economic growth in Togo: A vector equilibrium correction mechanism. *Global Economy and Finance Journal*, 10(1), pp.1-11.
- Ali, H. M., Law, S. H., Yusop, Z., Zeqiraj, V., Kofarmata, Y. I., & Abdulkarim, F. M. (2018). Remittance and growth nexus: Bootstrap panel granger-causality evidence from high remittance receiving countries. *International Journal of Economics and Business Research*, 15, 312-324.
- Chami, R., Fullenkamp, C. and Jahjah, S., 2005. Are immigrant remittance flows a source of capital for development?. *IMF Staff papers*, 52(1), pp.55-81.
- Central Bank of Kosova-CBK (2022) Time Series Data Report. Retrieved: <https://bqk-kos.org/statistikat/serite-kohore/>
- Fayissa, B., & Nsiah, C. (2010). The impact of remittances on economic growth and development in Africa. *The American Economist*, 55(2), 92–103.
- Giuliano, P., & Ruiz-Arranz, M. (2009). Remittances, financial development, and growth. *Journal of Development Economics*, 90, 144-152.
- Iqbal, Z. D.W., and Abdus S. (2005), *The Contribution of Workers' Remittances to Economic Growth in Pakistan*, Research Report No: 187, PIDE, Pakistan.
- Jouini, J. (2015). Economic growth and remittances in Tunisia: Bi-directional causal links. *Journal of Policy Modeling*, 37, 355-373.
- Khurshid, A., Kedong, Y., Calin, A.C., Zeldea, C.G., Qiang, S. and Wenqi, D., 2020. Is the relationship between remittances and economic growth influenced by the governance and development of the financial sector? New evidence from the developing countries. *Journal for Economic Forecasting*, (1), pp.37-56.
- Kumar, R. R., & Vu, H. T. T. (2014). Exploring the nexus between ICT, remittances and economic growth: A study of Vietnam. *Journal of Southeast Asian Economies*, 31, 104-120.
- Munir, R., Mureed, S., Dar, A. A., & Gardezi, M. A. (2016). Impact of personal remittances on economic growth of pakistan: A multivariate cointegration analysis. *Developing Country Studies*, 6, 45-49.
- Nyeadi, J. D., & Atiga, O. (2014). Remittances and economic growth: Empirical evidence from Ghana. *European Journal of Business and Management*, 6, 142-149.
- Nyasha, S. and Odhiambo, N.M., 2020. Does remittance inflow granger-cause economic growth in South Africa? A dynamic multivariate causality test. *The Review of Black Political Economy*, 47(1), pp.86-103.

- Olubiyi, E. A. (2014). Trade, remittances and economic growth in Nigeria: Any causal relationship? *African Development Review*, 26, 274-285. doi:10.1111/1467-8268.12081
- Pradhan, G., Upadhyay, M. and Upadhyaya, K., 2008. Remittances and economic growth in developing countries. *The European journal of development research*, 20(3), pp.497-506.
- Ramirez, M.D., 2013. Do financial and institutional variables enhance the impact of remittances on economic growth in Latin America and the Caribbean? A panel cointegration analysis. *International Advances in Economic Research*, 19(3), pp.273-288.
- Topxhiu, R.M. and Krasniqi, F.X., 2017. The relevance of remittances in fostering economic growth in The West Balkan countries. *Ekonomika*, 96(2), pp.28-42.
- Yang, D., & Choi, H. (2007). Are remittances insurance? Evidence from rainfall shocks in the Philippines. *The World Bank Economic Review*, 21, 219-248.