Econometric Approach of the Nexus Between Remittances and Economic Growth in Western Balkans

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Abstract:

Purpose: The purpose of this research paper is to highlight the importance of remittances in the economic development of a country, with special emphasis in Western Balkan countries.
Design/Methodology/Approach: This paper is based on the study of theoretical issues, OLS model, fixed (FE) and random (RE) effect model. In addition Hausman test has been applied to determine the appropriate model among Fixed and Random effects. Revealing the results of the Hausman test the Random effect model is considered as the appropriate model, and it implies the existence of positive and significant relationship between remittances and GDP per capita growth in the Western Balkan countries for the time period 2000 - 2018.
Findings: Results based in OLS model findings reveal a positive relationship between remittances and GDP per capita growth. Also the results of the random and fixed effect model reveal positive and significant effect of remittances on the economic growth, thus by increasing remittances the GDP per capita will increase. The results also present that Gross Fixed Capital Formation has a positive impact on the economic growth, where by increasing Gross Fixed Capital Formation, the GDP per capita will increase.
Practical Implications: The results of this research are supportive regarding the relationship between remittances and economic growth, yet will contribute to the existing literature as well as for further policy recommendations by the Western Balkan countries.
Originality/Value: This research paper is an empirical analysis based on the data provided by the World Bank, for the time period 2000-2018.

Keywords: Remittances, growth, Fixed effect, Random effect, Western Balkans.

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1. Introduction

International transfers known also as remittances have attracted the attention of many different researchers from developed countries as well as from developing. Considering the living standard in developed countries in comparison to the developing countries, it is worth mentioning that the reasons for migration are continually increasing, resulting in an increase in remittances from these countries. Western Balkans are known as countries with high levels of emigration, hence a high level of remittances. Based on "Personal i Mynihut RePec" report in the end of 2013, 5.7 million people originating from the Western Balkans are currently living abroad, leading to an emigration rate for this year up to 31.2%, starting from 18.2% of total population in Serbia to 45.3% prevalent in Montenegro.

After the dissolution of Yugoslavia, 3.5 million people left the region. The emigration level was 19.4%, with Serbia having 9.1% whereas Albania 38.5%. This emigration level has led to a significant degree of payments, the entire region received 8.6 billion dollars in 2015, starting from 3.1% of PBB in Northern Macedonia, while in Kosovo 16.7% (Petreski *et al.,* 2017). In the Central Bank's report on Western Balkans (2017) the remittances entry (as percent of GDP) is as follows:

Table 1. *Remittance inflows (percent of GDP) - Western Balkan countries*

Remittance inflows (percent of GDP)	2013	2014	2015	2016	2017	2018	2019
Albania	6.9	7.2	7.5	7.2	7.5	7.4	7.1
B&H	8.1	8.5	8.3	8.2	8.0	7.9	7.9
Kosovo	9.4	10.0	10.5	10.6	10.8	11.0	11.4
North Macedonia	2.2	2.2	2.1	1.8	2.1	2.0	2.0
Montenegro	4.6	4.3	4.1	3.8	3.7	3.7	3.5
Serbia	6.3	5.6	6.2	5.1	5.7	5.7	5.5

Source: *World Bank, 2017.*

Apart from individual benefits, remittances impact also the microeconomic level as well as the macroeconomic level of the economy. Regarding the microeconomic level, remittances bring high benefits to the checking accounts representing also a high percentage of GDP, on this level remittances positively affect the improvement of wellbeing, opportunities in educational level and in health. On the macroeconomic level, they are mostly addressed in the aggregate demand increase, whereby with an increase of the latter, there is an increase for producing and consuming and this is a result of several multipliers. Except for the positive impact of remittances, there are also negative effects whereby migrating abroad results also in the loss of the educated employees, known also as "brain drain" (Topxhiu and Krasniqi, 2017).

The aim of this study is to bring to attention the impact of the remittances in the economic development of the countries of Western Balkans. This research is structured in five sections: the introduction, literature review regarding remittances and their impact in a country's economic development, methodology, findings and the discussions.

2. Literature Review

Remittances known in economic literature as emigration transfers that are very important for a country's economic development, especially when the developing countries are in question. Remittances play an important role in the economy, as seen by the increase in consumption, investments and a country's financial stability. Nowadays, they are not only used as mechanisms of survival in the developing countries, but are also a sustainable source of investments and consumption mitigation in the future (Ratha, 2003; Silva and Huang, 2006). Remittances known in the economic literature are very important for the economic development of a country, especially when it comes to developing countries.

Remittances play an important role in the economy by seeing them through the prism of growth of consumption, investment and financial stability of a country. In the research by Catrinescu *et al*. (2009) it is stated that the transfers can also impact negatively the economic growth of a country in the midterm or the long-term period, because the remittances can urge inflation as well as disadvantages in the country's market, as well as the decrease in the number of labor market sharers, because the families who receive remittances can choose to live by those. Many authors have analyzed different influencing factors on remittances and have categorized them in macroeconomic and microeconomic factors. In several studies by different authors, many characteristics of the senders of remittances have been addressed. Within the characteristics of the senders what it comes to attention are age, gender, marital status, status in the workplace, their revenues etc.

Microeconomic factors are related to the migration circumstances and the migrant's relation with their home, and macroeconomic determinators related to economic and political conditions in both countries, the origin and the hosting country (Lucas, 2004). Another important factor in the microeconomic factor analysis is undoubtedly the emigrants' education level. In their studies Nimmi *et al*. (2008), have confirmed that the fleeing of educated individuals can bring to a vaccuum in the country of origin, but also the quantity of the remittances from this level is much lower in comparison to the one sent by less educated emigrants. Regarding the macroeconomic factors of remittances, the high flux of transfers can have direct consequences in the foreign exchange rates, internal interest rates and payment balances, as well as indirect consequences that may be macrovariables (World Bank, 2006). According to research, remittances can act as a stabilizer in the receiving countries. Authors, Chami, Fullenkamp, and Jahjah (2005), Bouoiyour, Selmi, and Miftah (2018) claim that remittances may have a tendency to move against cyclical

GDP with remittance recipient countries, where constantly there are implications of the model that remittances are compensating transfers. Based on the works of Matuzeviciute and Butkus (2016), Gashi (2018), it is said that the impact of macroeconomic factors can be positive and include: the increase of foreign investments, increase in the foreign currency rate, decrease of macroeconomic unsustainability and import increase, while as a negative impact can be considered the increase of the exchange rate, employment decrease, decrease in export competition and increase in the price level.

Meyer and Shera (2017) claim that remittances increase the consumption level of the rural families that may have crucial multiplier effects. These authors have also proved in their research of 1999-2013 for countries as Albania, Bulgaria, North Macedonia, Moldova, Romania and Bosnia Herzegovina through multiple regression analysis that remittances contribute positively and considerably in these countries' economic growth. So, the contribution of the remittances is the most significant and important in the country's economic growth. But its productive application can help the countries' economy to preserve and improve the economic growth by investing this money in consumption and various investments.

Based on the research of Singh *et al*. (2010) and Dridi *et al*. (2019), remittances can also increase the investment by decreasing the consumption unsustainability and by contributing in a more sustainable and favorable macroeconomic environment for investment activities.

## 3. Research Methodology and Data

Remittances represent an important external source of financial flow that especially has a crucial effect on the economic growth of developing countries. The economic theory implies that remittances can positively affect the economic growth as well as investment and consumption. In this regard, the model used in this research paper is based on this statement, representing the general shape of model equation. In this regard panel annual data are utilized for 6 countries in Western Balkans region: Albania, Bosnia, Montenegro, North Macedonia, Serbia and Kosovo, for the time spin of 2000 – 2018. The panel is strongly balanced, implying same time period for all the countries included in the panel.

In order to accomplish the main objective of this research paper, fixed effect (FE) and random random (RE) effect models have been employed, while OLS model has been used for comparison purpose. Fixed effect model is appropriate when determining the explanatory variable as non – random variable, contrary to the random effect model that treats the explanatory variable to be derived from random occurrences. In addition, the fixed effect model investigates the type of the impact of the variables that change over time. Thus, it investigates the nexus among the independent variable and dependent variable within the same unit, by assuming that the countries might contain individual characteristics that can influence the

independent variables. Therefore, the main objective of the fixed effect model is to check whether there exist a correlation between the error term and the independent variable, thus at the end to evaluate the net effect of the independent variables. On the other hand, the main assumption of the random effect model is that there exists a random or causal difference between the units (countries), that it is not correlated with the independent variables. In order to choose among the fixed and random effect model, Hausman test is performed.

Data set covers the recent annual data for the time spin 2000 -2018, for the Western Balkan region: Albania, Bosnia, Montenegro, North Macedonia, Serbia and Kosovo, collected from the indicators from the World Bank.

Figure 1. GDP per capita and remittances trends of Western Balkans
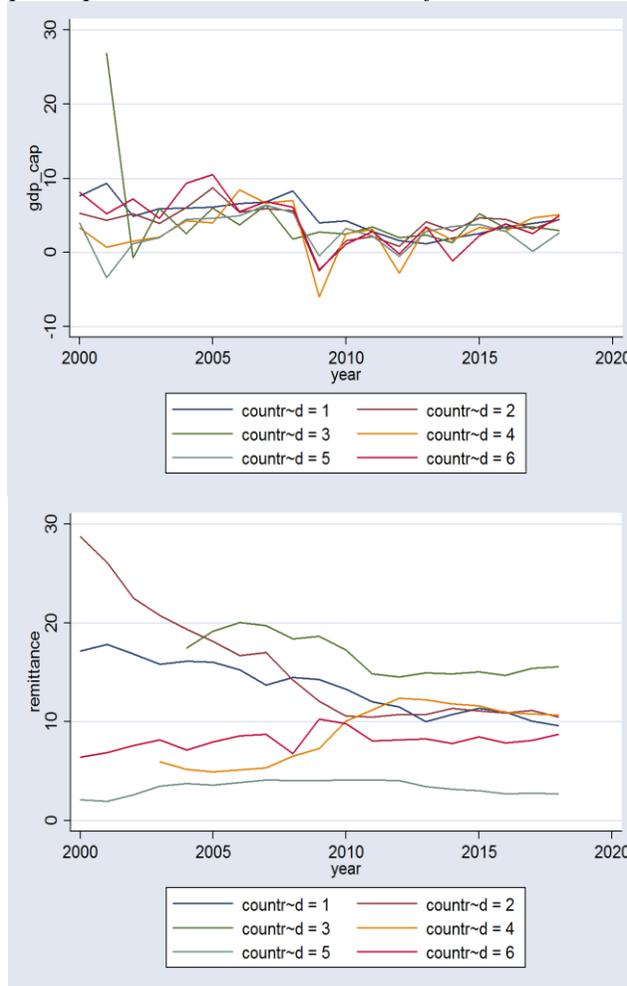
Source: Authors' source (World Bank data).

In order to determine the impact of the remittances on the economic growth in the Western Balkans, following the methodology of Chami *et al*. (2003), Chami *et al*. (2005) and Meyer and Shera (2017), this research paper employs panel regression models OLS, Fixed (FE) and Random (RE) effects. In this regard, the following basic regression equation has been determined:

$$Gdp_{cap} = \beta_0 + \beta_1 remmitance + \beta_2 gfcf + \beta_3 fconsump + \beta_4 population + \varepsilon \qquad (1)$$

where:
β_0 - intercept term;
gdp_cap – GDP per capita growth (% annual);
remittances – Personal remittances receipt (% of GDP);
gfcf – Gross Fixed Capital Formation (% of GDP);
fconsump – Final consumption expenditure (% of GDP);
population – population growth (annual %);
ε - error term.

In addition, the following table represents the expected relationship of the variables in the above model. Economic growth represents the dependent variable, measured through the GDP per capita growth rate (annual %), while remittance represents the independent variable measured through personal remittances receipt (% of GDP). As additional independent variables are gfcf that represents Gross Fixed Capital Formation as % of GDP, fconsump measures the final consumption expenditure as % of GDP and population that represents the population growth (annual percentage).

Table 2. *Definition of variables, their abbreviations and expected relationship*

Variables	Abbreviation	Relationship
GDP per capita growth rate (annual %)	gdp_cap	
Personal remittances receipt (% of GDP)	remittance	positive
Gross Fixed Capital Formation as % of GDP	gfcf	positive
Final consumption expenditure as % of GDP	fconsump	positive
Population growth (annual percentage)	population	negative

Source: *Authors' calculations.*

In addition, the following Table 3 represents the descriptive statistics of the variables, regarding the number of observations, their mean value, standard deviation, and their minimum and maximum value.

Table 3. *Descriptive statistics*

Variables	Observations	Mean value	Standard Deviation	Minimum value	Maximum value

gdp_cap	113	3.862011	3.493825	-5.996974	26.88778
remittances	107	10.86017	5.546285	1.979687	28.71385
Gfcf	109	23.5759	13.16328	-28.9021	79.78271
fconsump	112	98.17088	8.240793	79.56681	116.1335
population	114	-.1528761	.6320005	-3.582128	1.041533

Source: Authors' calculations.

4. Empirical Findings

Several econometric models have been employed in order to determine the relationship between remittances and economic growth in Western Balkans. In addition, the results of OLS, fixed effects and random effects are presented in Table 3. OLS findings reveal a positive relationship between remittances and GDP per capita growth, thus by increasing one point of the remittances the GDP per capita will increase by 0.1 point. In addition, adjusted R^2 =0.719, thus 71.9% of the estimated model explains the variances of the dependent variable – GDP per capita. In addition, positive and significant relationship is determined between gfcf and gdp_cap, where by increasing 1 point of Gross Fixed Capital Formation, the GDP per capita will increase by 0.08 point. Further, final consumption has positive but statistically insignificant effect on the economic growth, while population growth as expected has negative and significant effect on the economic growth of the Western Balkan countries.

The last two columns represent the Fixed effect and Random effect regression results. In addition, the last row represents the results of the Hausman test, indicating the Random effect model as appropriate. Thus, the null hypothesis individual effects are not correlated with other model repressor it cannot be rejected, thus Random effects model is suitable. Results of the Random effect model reveal positive and significant effect of remittances on the economic growth, thus by increasing one point of remittances the GDP per capita will increase by 0.11 point. In addition, Gross Fixed Capital Formation also has a positive impact on the economic growth, where by increasing one point of Gross Fixed Capital Formation, the GDP per capita will increase by 0.08 point. Population growth as expected it reveals negative effect on the growth, while final consumption does not have significant effect on the economic growth of Western Balkan countries.

Table 4. Regression results: OLS; fixed and random effects

Estimation model	OLS	FIXED EFFECTS	RANDOM EFFECTS
Dependent variable: gdp_cap			
remittances	**0.10483****	**0.24125***	**0.11183***
	(0.025)	**(0.007)**	**(0.023)**
gfcf	**0.0840***	**0.09313***	**.082745***

		(0.000)	(0.000)	(0.000)
fconsump		0.00504	0.05484	-0.00873
		(0.490)	(0.318)	(0.797)
population		-0.81972***	-0.79143	-0.79291***
		(0.058)	(0.247)	(0.068)
observation		**107**	**107**	**107**
Adjusted	**R-**	0.719		
squared				
F		**69.45**	**7.65**	
Wald Chi**2**				**29.42**
Model		**OLS**	**FE**	**RE**

Hausman test
Chi2 = 5.86
Prob>chi2=0.2096
Random effect appropriate

Breusch and Pagan Lagrangian multiplier test for random effects
chibar2(01) =   0.00
Prob > chibar2 = 1.0000

Note: (*) statistically significant at 1% level, (**) statistically significant at 5% ; (***) statistically significant at 10%

Source: Author's calculations.

5. Discussion

The main aim of the research paper was to investigate the relationship of the remittances and economic growth in Western Balkan countries, Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, Kosovo and Serbia, by utilizing recent data of the World Bank indicators for the time period 2000 – 2018. In this regard, several models have been used OLS, Fixed and Random effects. In addition, Hausman test has been determined in order to choose the appropriate model between Fixed and Random effects, determining the Random effects as the suitable one. Finally, the results reveal positive and significant relationship between remittances and economic growth in Western Balkans, for the time period 2000 – 2018.

In addition, the positive and significant effect of investment and insignificant effect of consumption reveal the need of the government to address the changes in the policies, yet keeping into consideration the short effect of consumption in the economic growth in the developing countries. A special recommendation from this research for Western Balkan countries is for these countries to have a special plan from the government for investments from remittances, since they are of high value, a special promotion for these investments to take place, because their potential is quite large, then ease of money transfers through commercial banks, meaning with lower costs.

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