

Global Connections: Examining the Role of Remittances in Economic development

Mihaela IORDACHE^{a*}, Mihaela MATEI^b, Emilia ȚÎȚAN^c

^{a)b)c)} The Bucharest University of Economic Studies, Romania

Abstract

This article surveys the main effects of remittances on economic development. The focus is to emphasise how the money sent back by emigrants in their home countries impacts factors such as imports or foreign direct investment that can influence the economy's evolution. All countries from European Union countries were included in the analysis, but we have been focusing on the post-communist EU countries, which were the focus of this article. The econometric model used is the multiple regression with the fixed-effect model (FEM) and the random effect model (REM) based on panel data. Our findings underline that remittances have a solid and significant influence on the economic development of emigration countries, especially among former communist countries. Finally, the research strengthens the current literature on remittances and economic development through an empirical analysis that focuses on recent data.

Keywords: *emigration, remittances, economic development.*

JEL Classification: F22.

* Corresponding author, Mihaela Iordache - iordache.mihaela08@yahoo.com

1. Introduction

Policymakers can choose investments and policies that will have the biggest effects on economic development by understanding the contributions of various external sources of capital to economic growth and development. Decisions about the growth of domestic economies can be influenced by evaluating the impact of external capital sources, including remittances, on economic development. Countries may create more effective development policies by understanding the functions of remittances, imports, foreign aid, and FDI. These strategies can best use each capital source's advantages to achieve development objectives, such as poverty reduction, infrastructure development, or job creation.

Economic growth and development are key aspects of the macroeconomic analysis discourse, although they are conceptually separate (King and Levine, 1994; Easterly, 2005). Economic growth refers to the increase in a country's output of goods and services over a period of time, typically measured by the Gross Domestic Product (GDP). On the other hand, economic development encompasses a broader range of factors, including improvements in

living standards, education, healthcare, and overall population well-being. The process by which economic growth evolves into economic development can be read as transforming the surplus value into a greater potential to satisfy the population's needs. The transformative process goes beyond quantitative increase, focusing on qualitative enhancement of societal well-being, including improved living standards, social welfare, and overall quality of life.

Domestic factors have traditionally played a crucial part in economic growth debates, supporting the basic framework within which countries map out their future development trajectories. In the scholarly discourse and policy formulation, factors like sound macroeconomic policies, effective governance, the development of human capital, political stability, and the accumulation of national savings have been given significant importance. These elements are fundamental to a country's internal dynamics and have long been acknowledged as the pillars around which long-term economic progress is built.

However, the current state of economic development has undergone a notable change, where forces originating from outside the domestic economy have become equally crucial determinants of growth. Imports, remittances, and foreign direct investment (FDI) from other economies stand out among these external factors. These elements, frequently external sources of capital, are becoming more and more important in promoting economic growth. Measuring economic development using a combination of indicators, including imports, Foreign Direct Investment, population growth %, life expectancy at birth, and unemployment rate %, can provide a more comprehensive view of a country's economic and social progress. It is crucial to comprehend the drawbacks and difficulties of using these indicators in the context of broader development assessments.

For our analysis, the concept of economic development is understood as a dependent variable, subject to the influence exerted by economic and socio-demographic factors, including remittances, foreign direct investment (FDI), unemployment rates, and population growth dynamics.

This study investigates how remittances affect the economic development of countries with European Union origins using World Bank economic development indicators like imports, foreign direct investment, population growth, and unemployment. The connection between remittances and imports is particularly interesting because imports are a measure of consumption, and a big influx of remittances increases a country's ability to import. In addition, foreign direct investment and unemployment rates are important development-stimulating factors (Driffield and Taylor, 2000), and population growth is a measure of societal advancement (Estes, 2015).

The theoretical and empirical literature reveals contradictory findings regarding the effect of remittances on economic growth, as is further explained in the following section. Recognised as a way to meet households' immediate needs, remittances are also a source of capital for education, new company endeavours, and investments, all of which promote economic growth (International Monetary Fund, 2014). However, studies show that, particularly in developing countries, remittances are frequently used for consumption rather than investment (Bodvarsson and Van Den Berg, 2013). Contextual variables, such as policies promoting capital and labour mobility, significantly impact how much remittances foster economic growth (Fagerheim, 2015). Bodvarsson and Van Den Berg (2013) back up the assertion made by Papademetriou (Papademetriou and Martin, 1991) that remittances only have minor benefits in the country of

emigration and stress that this limited impact is due to insufficient investment. Remittances can also indirectly impact the labour force by lowering labour force participation and affecting economic growth (Chami et al., 2003).

In the context of European countries, this study aims to explore the effect of remittances in fostering economic progress. To achieve this, the study uses annual data on remittances and economic development indicators, such as imports, foreign direct investment, population growth, and unemployment, covering all 28 EU Member states from 2011 to 2022. A macro-econometric technique is used. Two sub-analyses are created by stratifying the econometric analysis by migratory type. The second model separates former communist states, which primarily serve as emigration countries and, as a result, draw greater volumes of remittances, as opposed to the first model, which includes all the European Union's member states.

The primary objective of this research is to conduct a comprehensive analysis of the influence of remittances on the import behaviours of European Union member states, with a particular emphasis on those that transitioned from communism to democracy. This study aims to explain the multifaceted relationship between remittances and economic development within the EU and to explore the extent to which remittances contribute to the economic growth of these countries.

In contrast to past research, our work investigates the relationship between remittances and economic growth indicators inside the European Union, including imports, foreign direct investment, population growth, and unemployment. The main value of this research is its ability to offer insightful guidance to organizations managing migration policies, acting as a resource for decision-makers developing and putting into action development initiatives. The findings of the study could also affect how programs and policies relating to remittances and economic growth are developed and implemented. In the end, this study adds to the body of knowledge already written about migration, remittances, and economic growth by using up-to-date data and including both developed and developing states in its analysis.

The paper is organized as follows. The first part includes a review of the literature on remittances, their effects on economic growth, and their potential impact on imports; we describe the data sources and econometric models used, including multiple regression with fixed-effect and random-effect models based on panel data. The results of our empirical investigation, which focused on the connection between remittances and imports in EU states, are presented in the following section. Following this section's assessment of the findings, we delve into broader economic and political ramifications and evaluate any potential drawbacks. The important results and their contributions to the body of literature are summarised in the final section.

2. Literature review

In recent years, there has been an increase in scholarly attention within the economics field, particularly in international remittances (Rapoport and Docquier, 2006; Taylor et al., 1996; Catrinescu et al. 2009). The growing interest in this subject is notably attributed to the rising prominence that international remittances have assumed in the context of the growing global economy. In the current setting, international remittances have evolved into a central focal point, attracting considerable academic scrutiny and policy relevance. Illustrating the

magnitude of this phenomenon, World Bank data unequivocally underscores the pivotal role international remittances play in the global economic landscape. According to the World Bank's report (Ratha et al., 2023), international remittances reached \$630 billion in the year 2021, compared to foreign direct investment (FDI). The data provided by the World Bank underscores that remittances represent a substantial and indispensable source of external financing at a macro level.

Our paper concentrates on the effects of international remittances on the economic results of the origin countries. The potential impact of migrants' remittances on economic development has been the subject of extensive theoretical and empirical exploration (Roman, 2013). A growing body of literature that has explored remittance suggests that the effects of remittances on economic development are strongly influenced by the diversity and motivations of migrants, the level of development, and the institutional framework in the country of origin.

Currently, the literature discusses different theories on the impact of remittances on economic growth (Eggoh et al., 2019; Gapen et al. 2009; Nzima et al., 2017). The optimistic school focuses on the direct positive effects of remittances on economic development. Different authors show positive results and emphasise the importance of institutional indicators (Catrinescu et al. 2009; Goschin, 2014; Bettin and Zazzaro 2012; Giuliano and Ruiz-Arranz 2009). The literature identifies the positive effects on consumption, households' agricultural production, and household expenditures for education, physical capital investments and entrepreneurial activities. In theory, remittances can stimulate economic growth through various channels, such as facilitating the financial market development, acting as a financial source for business, shock insurance, financing household expenses, financing family formation, capital, and external financial deficit (Ramirez, 2014). Leon-Ledesma and Piracha (2004) conducted a study on the economies in transition in Eastern Europe between 1990 and 1999 and concluded that remittances positively affect investment and productivity in the country of origin. Thus, temporary emigration can benefit emigrants and their families because it brings a rapid improvement in life due to the experience gained in another country (Lupoiu and Raceanu, 2019). More recently, Anghelache et al. (2017) analysed the impact of remittances on financial development, showing the significant impact on the origin countries' financial and economic development.

Remittances, defined as financial flows from migrant workers to their home countries, have gathered significant attention in economic literature due to their potential impact on economic growth and development. Azam and Khan (2011) explored the relationship between workers' remittances and economic growth in Azerbaijan and Armenia, shedding light on remittances' positive influence on the economies of origin countries. Moreover, studies such Chami et al. (2003) investigated the role of remittances as a source of capital for development, providing valuable insights into the mechanisms through which these financial inflows can contribute to economic progress. Chowdhury (2016) contributed to this body of research by examining the nexus between financial development, remittances, and economic growth, employing dynamic panel estimation techniques to discern the impact of remittances on economic expansion. De Haas (2007) presented a conceptual literature review, emphasizing the multifaceted aspects of remittances, migration, and their implications for social development. This review offered a comprehensive framework for understanding the broader implications of remittance inflows. Feeny et al. (2014) explored the differential impacts of remittances on economic growth in

smaller countries, providing insights into how the scale and context of a country might influence the magnitude of the effect of remittances on economic development.

Furthermore, studies like Goschin (2013) for Romania and Kratou and Gazdar (2016) focusing on MENA countries examined the specific impacts of remittances on economic growth within their respective regional contexts. Goschin highlighted the potential of remittances as an economic growth resource in Romania. At the same time, Kratou and Gazdar delved into the effect of workers' remittances on economic growth in the MENA region, contributing region-specific evidence to the broader discourse.

Roman (2010) provides valuable insights into the past trends of Romanian migrants' remittances, particularly exploring the impact of economic crises on remittance inflows, while Goschin and Roman (2012) investigate the determinants of remittance behaviour among Romanian international migrants in the context of an economic crisis.

By synthesizing these studies, it becomes evident that the impact of remittances on economic growth varies across regions and countries, requiring a nuanced approach to analyzing their influence within the European Union, particularly focusing on the ex-communist countries.

The finding of the econometric models in this study underscores the impact of remittances on economic development, particularly concerning imports within the EU28 focusing on communist countries (Feeny et al., 2014; Abduvaliev and Bustillo, 2020). The result aligns with the findings of earlier scholars on the positive influence of remittances on economic development (Goschin, 2014; Leon-Ledesma and Piracha, 2004), whose research corroborates the effect of remittances on economic development. This convergence of findings substantiates that remittances play a pivotal role in fostering economic growth and development, further underlining their importance.

Our assertion of remittances' positive impact on economic development contrasts with the arguments made by Cáceres and Nery Saca (2006) or Bhaskara and Takirua (2010). These scholars proposed a negative correlation between aid, remittances, and economic development, validating this pessimistic view through the results they obtained. The disparity in findings highlights the complex interplay of various factors and contextual nuances that influence the relationship between financial inflows and economic development outcomes.

However, a large and growing body of literature has recently investigated the pluralistic view in which both positive and negative effects on economic development are possible (De Haas, 2007; Konte, 2018). The heterogeneity of the conclusions was explained either due to the inadequate measurement of remittances, the use of different panel data or collinearity (Freund and Spatafora, 2008). Therefore, the literature review about the economic development impact of remittances shows that no theory can be applied to every outcome.

Another noteworthy outcome of this study is that when combined with the impact of remittances, foreign direct investment (FDI) explains a substantial proportion of the variation in imports. This underscores the complementary relationship between remittances and FDI in influencing economic development (Borensztein et al., 1998; Giuliano and Ruiz-Arranz 2009; Basnet and Upadhyaya, 2014). It suggests that these two capital inflows, when strategically harnessed, possess the potential to drive economic growth, especially in developing countries significantly.

The impact of remittances on imports is the subject of economic analysis. The empirical evidence of previous studies has indicated various results. While several comments show a relevant influence of remittances in the determination of import results (Tahir et. al, 2015; Minh, 2020; Hernández and Toledo, 2020), other studies using a Keynesian approach have shown that remittances provide a marginal effect to import (Stark, 1991). Glytsos shows that imports generated by remittances impact economic growth by providing capital goods for domestic production (Glytsos 2005). Besides, the current literature examines the relationships between economic growth and unemployment (Kreishan, 2011; Soyly et al., 2018), economic growth and FDI or unemployment and FDI. Many economists underline that FDI enhances investments, encourages job creation, and favours knowledge and technological skills transfers, contributing directly to economic growth (Balcerzak and Zurek, 2011). Furthermore, several studies have revealed the validity of the relationship between economic growth and the unemployment rate. More recently, Soyly has measured that a 1% rise in GDP will reduce the unemployment rate by 0.08% (Soyly, et al., 2018). Moreover, migrants trigger development through remittances and enhancing the FDI inflows towards their origin countries (Roman and Strat, 2018).

The inclusion of life expectancy and birth rate in the models underscores the multifaceted nature of poverty reduction and its impact on broader economic development. This inclusion aligns with the conclusions drawn by Adams (Adams, 2004; Adams and Page 2005), who found that international remittances reduce poverty levels and contribute to economic growth (Feeny, et al., 2014). In a study on Central and Eastern Europe, one observer (Billingsley, 2010) has already drawn attention to the fact that GDP changes positively correlate with fertility rates.

The study also sheds light on the influence of the unemployment rate, a macroeconomic variable that typically negatively influences a country's development, particularly during times of crisis. However, when considered alongside demographic factors such as population growth and life expectancy at birth, the analysis reveals that the collective impact becomes more pronounced, explaining a substantial variation in economic development.

The literature review contextualizes the study's results, emphasizing the positive impact of remittances on economic development, as corroborated by previous research. It also highlights the multifaceted nature of this relationship, including the complementary role of FDI, the contrasting perspectives on remittances, and the influence of demographic and macroeconomic factors.

3. Methodology

This study aims to investigate the effect of remittances relative to the other external sources of capital such as import, foreign aid, and foreign direct investment on economic growth and development. We hypothesise that remittances have a positive and statistically significant effect on the economic growth of origin countries.

In this paper, we used panel models for the 28 countries in the European Union. However, the analysis was divided into two steps. Thus, we initially analysed the impact of remittances on imports for all 28 countries in the European Union (including the United Kingdom). Then, we reduced the number of countries to 10, i.e. we took into account the ex-communist countries

(Bulgaria, Czech Republic, Hungary, Romania, Poland, Slovakia, Estonia, Croatia, Latvia, and Lithuania).

The model used in this analysis is adapted to the variables used. Thus, to quantify the impact of remittances on Imports, we used the following regression equation for panel data:

$$X_{it} = \alpha + \beta * Y_{it} + \delta_i + \gamma_t + \varepsilon_{it} \quad (1)$$

Where:

- i represents the country;
- t represents the time period;
- ε_{it} represents the residual variable;
- δ_i represents the random or fixed effects for the cross-section units;
- γ_t represents the random or fixed effects for periods of time;
- Y_{it} represents the logarithm or the % of independent variables;
- X represents the logarithm of Imports at market prices (expressed in Current prices, million euro)

The research begins by developing a detailed econometric model, as previously described in the study. This model includes various variables such as remittances, imports, foreign direct investment, population growth, life expectancy at birth, and the unemployment rate. Each of these variables was carefully considered and integrated into the model to create a comprehensive framework for analysis. The primary objective of the research is to assess the influence of remittances on the economic development of the countries under study. Specifically, the research aims to determine whether remittances have a positive or negative effect on the economic trajectory of the countries. We take a comparative approach by examining two distinct groups of countries: the 28 EU member states and, inside this group, the former communist countries. This comparison allows for an analysis of whether the impact of remittances varies between these groups or if there are common trends and can provide valuable insights into the heterogeneous effects of remittances in different economic and political contexts.

Panel models were estimated using both fixed and random effects. Then, for each model, we checked with the help of the Hausman test which model is more suitable. The Hausman test hypotheses are as follows:

- ✓ H_0 : the preferred model is random effects
- ✓ H_1 : the model is fixed effects

If $p\text{-value} > 5\%$, then we will accept the null hypothesis that tells us that the random effects are more suitable for our model;

For estimating the models, we used Eviews 12 as statistical software. Some variables were logarithmic to reduce volatility as much as possible. We opted for panel data models because we want to include in the analysis all countries of the European Union and a period significantly longer than one year.

4. Data and variables used

Regardless of many articles about the impact of remittances on economic development, the analysis of this impact remains an interesting topic. The results are different when we change

the number of countries included in the analysis of the methodology used. This article seeks to analyse the impact of remittances on economic development as follows:

- In a first stage, we have included in the analysis all 28 Member states of the European Union;

- The second stage includes the former communist countries (Bulgaria, Czech Republic, Hungary, Romania, Poland, Slovakia, Estonia, Croatia, Latvia, and Lithuania);

To analyse this impact, we have used panel data for the period 2011 - 2022.

Table no. 1 Variables

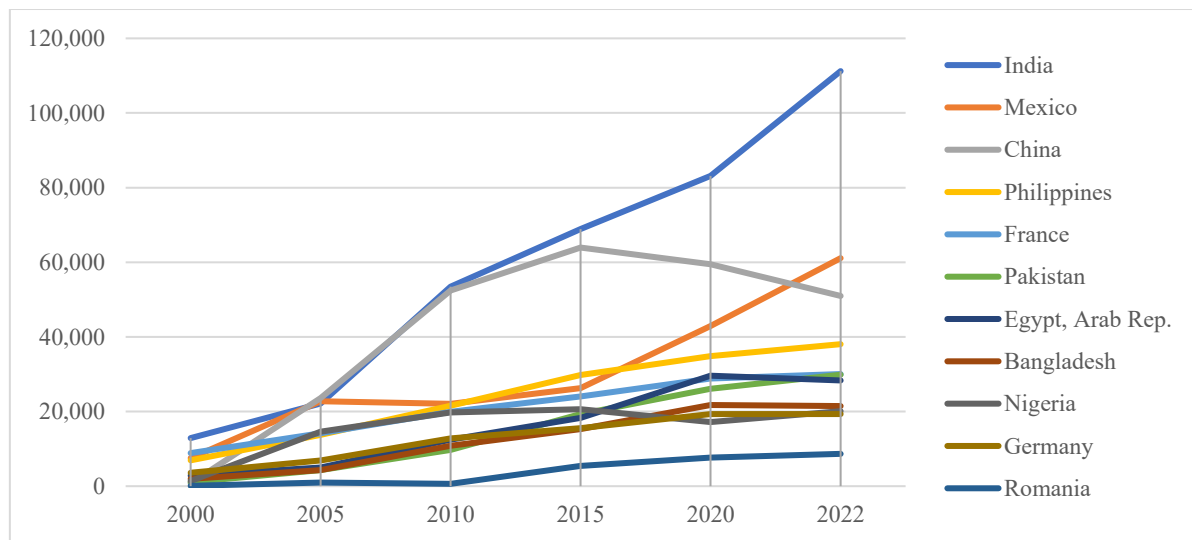
Variables	Definition	Measurement unit	Data Source
Remittances	Personal remittances comprise personal transfers and compensation of employees. Personal transfers consist of all current transfers in cash or in kind made or received by resident households to or from nonresident households. Personal transfers thus include all current transfers between resident and nonresident individuals. Compensation of employees refers to the income of border, seasonal, and other short-term workers who are employed in an economy where they are not resident and of residents employed by nonresident entities.	U.S. dollars.	World Bank (https://data.worldbank.org/indicator/BX.TRF.PWKR.DT.GD.ZS)
Imports	Imports of goods and services represent the value of all goods and other market services received from the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments.	U.S. dollars.	World Bank (https://data.worldbank.org/indicator/BM.GSR.GNFS.CD)
Foreign direct investments	Foreign direct investment refers to direct investment equity flows in the reporting economy. It is the sum of equity capital, reinvestment of earnings, and other capital. Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy. Ownership of 10 percent or more of the ordinary shares of voting stock is the criterion for determining the existence of a direct investment relationship.	U.S. dollars.	World Bank (https://data.worldbank.org/indicator/BX.KLT.DINV.CD.WD)
Population Growth	Annual population growth rate for year t is the exponential rate of growth of midyear population from year t-1 to t, expressed as a percentage . Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship.	%	World Bank (https://data.worldbank.org/indicator/SP.POP.GROW)
Life expectancy at birth	Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.	Years	World Bank (https://databank.worldbank.org/source/world-development-indicators/Series/SP.DYN.LE00.IN#)
Unemployment rate	Unemployment refers to the share of the labor force that is without work but available for and seeking employment.	%	World Bank (https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS)

Table no. 2 Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
Remittances	336	4.311.793.586	5.892.113.747	79.854.620	3.927.902.319
Imports	336	226.777.498.965	49.581.897.854	13.390.800.947	1.111.593.852.701
Foreign direct investments	336	9.698.418.095	60.889.395.094	330.338.474.188	332.926.404.424
Population Growth	336	0,21	0,91	6,19	3,93
Life expectancy at birth	336	79,6	2,9	71,5	83,8
Unemployment rate	336	8,3	4,6	2,0	27,5

Source: World Bank. This table displays the descriptive statistics for the major variables in this study

Despite the fact that that migration is a phenomenon analysed by specialists, the data on migration and its implications are different from source to source. In this paper, the results are based on data collected from the World Bank.

**Figure no. 1 Remittance inflows (US\$ million)**

Source: World Bank (US\$)

Choosing Romania as an illustrative case for the examination of remittances' impact on economic development stems from its unique position within the former communist countries and its economic landscape. Despite the abundance of literature on the subject, the variability in findings across analyses involving different sets of countries underscores the complexity of this relationship. Romania was a country of net emigration even before 1989. Despite the communist regime's efforts to maintain control over the number of emigrants, there were several ways of emigration, which together show a flow that recorded a modest but constant increase (Iordache and Matei, 2020). The graph showing the evolution of remittances in Romania confirms the positive trend from 2011 to 2022, highlighting the boom in 2013, which is directly influenced by the evolution of emigration. In the period 2010-2012, Romanian emigration suffered a slight decline due to the economic crisis of 2008. However, starting with 2013, emigration has again reached high values similar to those prior to the crisis. Also, the

evolution of the remittances is closely related to the evolution of the Gross Domestic Product (the correlation coefficient being 87%).

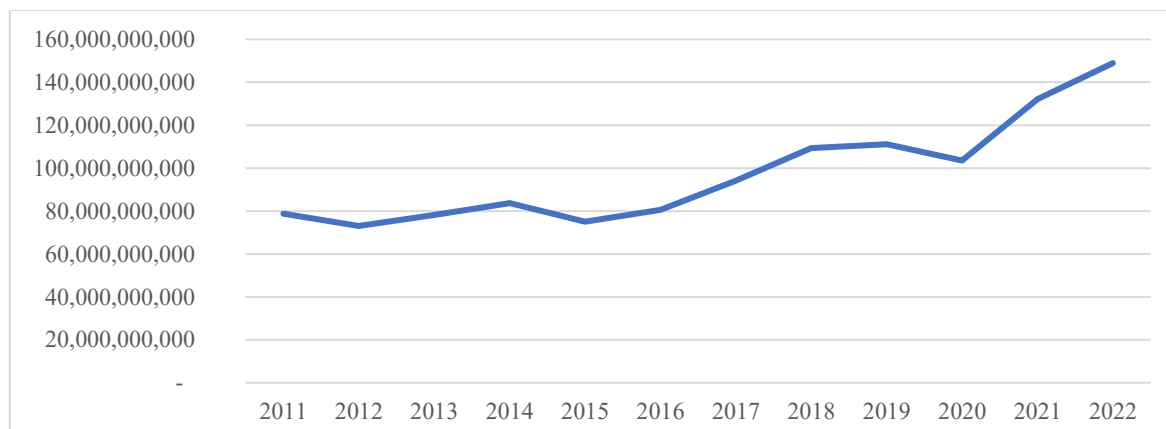


Figure no. 1 Evolution of imports in Romania, 2011-2022

Source: World Bank (US\$)

Like the Gross Domestic Product, Romania's imports have increased starting with 2015. Between 2011 and 2015, the imports have fluctuated, but the positive trend was noticeable since 2015.

Table no. 3 Amount of remittances/GDP in European Union, 2011-2022

% Remittances/GDP	Average	Min	Max
Austria	0,71	0,62	0,76
Belgium	2,29	2,24	2,45
Bulgaria	2,96	2,28	3,70
Cyprus	2,00	1,39	2,68
Czechia	1,32	0,61	1,70
Germany	0,46	0,41	0,50
Denmark	0,38	0,32	0,42
Spain	0,22	0,12	0,31
Estonia	1,84	1,23	2,25
Finland	0,31	0,21	0,40
France	0,98	0,80	1,22
United Kingdom	0,16	0,11	0,19
Greece	0,29	0,20	0,42
Croatia	5,89	3,64	7,60
Hungary	2,64	1,62	3,24
Ireland	0,19	0,04	0,32
Italy	0,48	0,38	0,52
Lithuania	2,86	1,05	4,49
Luxembourg	2,88	2,66	3,13
Latvia	4,26	3,15	5,48
Malta	1,96	1,27	2,47
Netherlands	0,23	0,17	0,30
Poland	1,30	0,94	1,48
Portugal	0,55	0,19	4,09
Romania	2,53	0,36	3,24
Slovak Republic	2,16	1,76	2,41
Slovenia	0,97	0,41	1,37
Sweden	0,64	0,49	0,78

Source: World Bank (%)

5. Empirical findings and discussion

Based on the methodology explained above, we estimated the following models using the ordinary least squares (OLS) method. However, an important aspect to be underlined when evaluating the results is that the effect that the remittances have on origin countries' economies could be larger than our results indicate due to the *true value of remittances*.

After instrumenting, remittances still have a statistically significant impact on economic development. Apart from the magnitude of the coefficients, the results reported in models 1, 3 and 4 are comparable. Broadly, the results reveal the expected relationship between the imports and the explanatory variables (the variables representing the sources of growth - migrant remittance inflows, foreign direct investments, population growth, life expectancy at birth and unemployment rate) have the expected signs according to the priori predictions.

The most important modelling results are presented in the table below:

Table no. 4 Models for EU28

ln (Imports)	Model 1	Model 2	Model 3	Model 4
ln (Remittances)	0.435*** (0.039)	0.611*** (0.033)	0.464*** (0.041)	0.497*** (0.035)
ln (FDI)	0.342*** (0.028)		0.317*** (0.030)	0.214*** (0.029)
Population Growth %			0.141*** (0.052)	
ln (Life expectancy at birth)		15.855*** (1.106)		11.199*** (1.227)
Unemployment Rate %		-0.007 (0.009)		
Constant	8.297*** (0.855)	-56.949*** (4.870)	8.221*** (0.852)	-39.103*** (5.242)
Observations	292	336	292	292
R-squared	59.79%	63.70%	61.89%	69.91%

Robust Standard Errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The second stage is shown in Regression 2 in Table 4 below.

Table no. 5 Models for former communist countries

ln (Imports)	Model 1	Model 2	Model 3	Model 4
ln (Remittances)	0.713*** (0.069)	0.688*** (0.051)	0.536*** (0.067)	0.473*** (0.068)
ln (FDI)	0.355*** (0.043)		0.321*** (0.044)	0.346*** (0.046)
Population Growth %			0.255*** (0.055)	
ln (Life expectancy at birth)		8.489*** (2.050)		7.578*** (2.345)
Unemployment Rate %		-0.154*** (0.016)		
Constant	6.897*** (1.288)	-25.569*** (8.932)	6.347*** (1.199)	-25.792*** (10.315)
Observations	112	120	112	112
R-squared	68.45%	78.41%	76.61%	74.25%

Robust Standard Errors in parentheses
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

To check what kind of model is better to use, we will apply the Hausman test. Thus, for model I, for EU28, the closest is to use random effects (the probability obtained from the Hausman test is higher than 0.05) and models II, III and IV, fixed effects. In the case of models in which we have kept only the ex-communist countries, the Hausman test showed that fixed effects are recommended for models II, III and IV and for model I random effects.

The Hausman test serves as a methodological tool to determine which econometric model—random effects or fixed effects—is more appropriate for a given dataset. Random effects models assume that unobserved individual-specific effects are uncorrelated with the explanatory variables. In contrast, fixed effects models allow for individual-specific effects that are correlated with the observed explanatory variables. In the context of our study involving the impact of remittances on economic development across different sets of countries (EU28 and former communist countries), the test results indicate distinct recommendations for the choice between these models.

For the EU28 analysis, model 1 (EU28) indicates that random effects are preferable. This suggests that there might be unobserved individual-specific effects that are not correlated with the explanatory variables. In this case, a random effects model is deemed more suitable.

For the analysis focusing on ex-communist countries, models 2,3 and 4 suggest that fixed effects are more appropriate. This implies that there are individual-specific effects correlated with the observed explanatory variables within this subset of countries.

These tests are relevant as they help us select the most suitable model that adequately captures the relationship between remittances and economic development. Choosing the right model ensures that the results obtained are more accurate and reflective of the actual dynamics at play within the data. The decision between random effects and fixed effects models significantly impacts how the individual-specific effects are accounted for in the analysis, which is essential in understanding the true impact of remittances on economic development across different country groupings.

The results of the Student test confirm the validity of the models. The statistical threshold for the F test is less than 5% which shows us that the null hypothesis is rejected, and the alternative hypothesis is accepted so that the regression models are valid, the results being guaranteed with a probability of 95%. Thus, we can notice a significant link between the dependent variable and independent variables included in the model.

The current study's findings are of significant importance despite being based on a relatively small sample size. The study primarily focuses on assessing the relationship between several key variables and economic development in two distinct groups of countries: the European Union 28 member states and former communist countries. The results of the analysis reveal compelling insights into the factors that influence economic development in these regions. One of the key findings is that both models, representing both the EU28 and former communist countries, demonstrate positive and highly significant coefficients for various factors, namely remittances, foreign direct investments, population growth, and life expectancy at birth. Let's delve into each of these findings:

The study's findings show that remittances contributes positively to the overall economic well-being of their home states. These funds can be used for investment, consumption, or other

economic activities, stimulating economic growth. This implies that these funds are not just a source of income for recipient households but also play a crucial role in the broader economic context.

The analysis also indicates that foreign direct investments have a positive and highly significant influence on economic development. Another significant finding is that population growth is positively correlated with economic development. This means that countries experiencing higher rates of population growth tend to have better economic outcomes. A growing population can potentially translate into a larger labour force, increased consumer demand, and more opportunities for economic expansion. Furthermore, the study's results indicate that higher life expectancy at birth is associated with economic development. This finding suggests that when a country's population enjoys better health and longevity, it can have positive effects on economic productivity and human capital. A healthier and longer-living population may contribute to a more skilled and productive workforce. Additionally, the study reveals that the unemployment rate has a negative impact on economic development. This observation aligns with Okun's law, which posits that there is an inverse relationship between changes in the unemployment rate and economic growth rates. This finding underscores the importance of employment opportunities and labour market conditions in fostering economic development in the studied countries.

So, despite the study's limited sample size, it provides valuable insights into the factors that influence economic development in the EU28 and former communist countries. The positive relationships between remittances, foreign direct investments, population growth, and life expectancy at birth, along with the negative impact of the unemployment rate, highlight key areas for policymakers to focus on when aiming to promote economic growth and development in these regions.

The most important result to emerge from the econometric models is the significant positive impact of remittances on economic development characterised by imports in EU28 and former communist countries. Our study confirms previous findings from the literature presented (Leon-Ledesma and Piracha, 2004; Goschin, 2014).

After comparing all the regressions with different specifications and regression models, the results indicated that the higher the remittances inflow, the better the economic evolution, mainly in developing countries. Moreover, combining the impact of remittances with foreign direct investment explains the variation of imports in the proportion of 72%. Furthermore, also considering also the high volumes of both catalysts, a common approach significantly influences the development.

The noteworthy outcome derived from the econometric models in this study is the positive effect of remittances on economic development, particularly in the context of imports within the European Union 28 and former communist countries. The study uses imports as a proxy for economic development, indicating that the influx of remittances positively contributes to a nation's ability to purchase and import goods and services from other countries. This can signify a higher level of economic activity, improved living standards, and potentially greater economic stability. Our findings reinforce and validate prior research in this field. The fact that remittances received by countries of origin positively influence their economic development is in line with the findings of authors like Goschin (2014), Giuliano and Ruiz-Arranz (2009), Bettin and Zazzaro (2012), who also found a positive and significant effect of remittances on

economic development. However, this contradicts the argument made by other authors like Cáceres and Nery Saca (2006), Bhaskara and Takirua (2010) on the negative correlation between aid and remittances and economic development.

In addition to the previously discussed positive impact of remittances on economic development, it's worth highlighting another important dimension that the study explored. The inclusion of life expectancy as a variable in the analysis adds depth to the findings, as it is closely related to the level of poverty within a country. This, in turn, lends further support to the conclusions drawn by researchers such as Adams regarding the poverty-reducing effects of international remittances and their consequent influence on economic growth (Adams 2004; Adams and Page, 2005). This is consistent with the idea that remittances can provide financial resources to recipient households, helping them escape poverty traps and invest in areas that improve their quality of life.

A negative factor of influence on imports is the unemployment rate, a macroeconomic variable that usually negatively influences a country's development, being higher mainly in crisis periods. However, alongside demographic factors like population growth and life expectancy at birth, the impact on imports is better captured and reached to explain economic development variation to 80%.

The positive impact of remittances on economic development can have far-reaching consequences. It can lead to increased household income, improved access to education and healthcare, and enhanced overall living standards. Moreover, it can stimulate economic growth by boosting consumption, investment, and demand for goods and services. These findings have important policy implications. Governments and policymakers may consider strategies to facilitate and maximize the positive effects of remittances on economic development.

6. Conclusions

In this study, we conducted a comprehensive analysis to investigate the impact of remittances relative to other external sources of capital, such as imports, foreign aid, and foreign direct investment, on economic growth and development. Our primary hypothesis was that remittances have a positive and statistically significant effect on the economic growth of origin countries. Through panel data analysis, we examined 28 European Union member states and then narrowed our focus to 10 former communist countries. The results can help develop government policies in which remitters receive special attention, significantly influencing the economic development of the countries of origin.

We conducted an in-depth analysis, considering a range of factors, including population growth, life expectancy at birth, foreign direct investment, and the unemployment rate. This comprehensive approach allowed us to better understand the multifaceted impact of remittances on economic development. 8 econometric models were run, 4 for EU28 and 4 for the former communist countries and we conducted the Hausman test to determine the most appropriate model for different circumstances. This robustness in our methodology ensures the reliability of our results. Thus, despite its exploratory nature, this study offers some insight into the effect of remittances relative to the other external sources of capital such as import, foreign aid and foreign direct investment on economic growth and development.

Several limitations to this pilot study need to be acknowledged. First, the true value of remittances was difficult to be estimated. Secondly, some bias could be left due to determinants of remittances and other variables correlating with both remittances and economic development. Notwithstanding these limitations, the study indicates that international migrant remittances have a positive impact on economic development.

The current findings add to a growing body of literature on the impact of remittances on economic development. The econometric results obtained confirm the assumed hypotheses so that the remittances have a statistically significant impact on the economic development in Europe, characterised by imports. Moreover, the impact is greater as we focus on countries where migrants represent a significant percentage of the country's population, remittances representing a significant percentage of gross domestic product. The most noticeable result from our econometric models is the positive impact of remittances on economic development. Our study aligns with previous research in the field, confirming the positive relationship between remittances and economic development. This reaffirms the idea that remittances are an essential driver of economic progress and development, as suggested by numerous scholars. We emphasize the context of economic development, where the unemployment rate or population dynamics are intertwined with the effects of remittances. A comprehensive approach to addressing these factors can lead to more effective policies aimed at fostering sustainable economic growth. Policymakers should acknowledge the positive role that remittances can play in reducing poverty, improving access to education and healthcare, and ultimately enhancing living standards. Strategies to facilitate the productive use of remittance funds and reduce transfer costs could be beneficial.

Considerations of correlation between remittances and development have to be taken into account in order to capitalise on their development potential. While framing policies, governments must take into account policies seeking to facilitate remittance. A reasonable approach to tackle this issue could be to reduce the cost of remittance transfers or to do not overregulate remittance flows. Other types of targeted interventions could include enhanced local development by increasing and directing remittances inflows in non- developed regions.

Our approach does not cover all the possibilities of examining the impact of remittances on economic development. Among the problems that have remained open is the analysis of remittances, especially in countries where emigration registers alarming percentages and in developed countries where remittances are low compared to gross domestic product. More research is needed to better understand better the remittance reinvestment and the significant influences of the impact on a country's economic development. Future research would be interesting, adding even more dimensions to the analysis when evaluating the remittances' effect on economic development. Exploring the strategies for engaging diaspora communities in economic development initiatives or assessing the alignment between remittance flows and progress toward achieving the United Nations' Sustainable Development Goals such as poverty reduction, quality education, and good health and well-being, can contribute with valuable insights into the impact of remittances on economic development.

Our study contributes valuable insights into the impact of remittances on economic development, shedding light on their positive influence in both EU28 and former communist countries. While acknowledging the limitations of a relatively small sample size, our research underscores the significance of remittances as a catalyst for economic growth and poverty

reduction. By considering the interplay of multiple variables, we provide a more nuanced understanding of how remittances can shape the economic trajectory of countries. These findings serve as a call to action for policymakers to harness the potential of remittances to promote sustainable economic development and improve the well-being of their populations.

References

- Abduvaliev, M. and Ricardo B., 2020. Impact of Remittances on Economic Growth and Poverty Reduction amongst CIS Countries. *Post-Communist Economies* 32 (4): 525–46. <https://doi.org/10.1080/14631377.2019.1678094>.
- Adams, R., 2004. Remittances and Poverty in Guatemala. *Policy Research Working Paper*, The World Bank, Washington D.C., 3418. <http://hdl.handle.net/10986/13996>.
- Adams, R. H. and Page, J., 2005. Do International Migration and Remittances Reduce Poverty in Developing Countries? *World Development*, 33 (10): 1645–69. <https://doi.org/10.1016/j.worlddev.2005.05.004>.
- Anghelache, C., Anghel, M.G. and Solomon, A.G., 2017. The Effect of Migration on Labor Resources. *International Journal of Academic Research in Accounting, Finance and Management Sciences* 7 (3): 6–13. <https://doi.org/10.6007/IJARAFMS/v7-i3/3050>.
- Azam, M. and Khan, A., 2011. Workers' remittances and economic growth: evidence from Azerbaijan and Armenia. *Global Journal of Human Social Science*, 11(7), 41–46.
- Balcerzak, A.P. and Zurek, M., 2011. Foreign Direct Investment and Unemployment: VAR Analysis for Poland in the Years 1995-2009. *EUROPEAN RESEARCH STUDIES JOURNAL* XIV (Issue 1): 3–14. <https://doi.org/10.35808/ersj/306>.
- Basnet, H.C. and Upadhyaya, K.P., 2014. Do Remittances Attract Foreign Direct Investment? *An Empirical Investigation*. *Global Economy Journal* 14 (1): 1–9. <https://doi.org/10.1515/gej-2013-0052>.
- Bettin, G. and Zazzaro, A., 2012. Remittances and financial development: substitutes or complements in economic growth? *Bulletin of Economic Research*, 64 (4): 509–36. <https://doi.org/10.1111/j.1467-8586.2011.00398.x>.
- Bhaskara Rao, B. and Takirua, T.B., 2010. The effects of exports, aid and remittances on output: the case of Kiribati. *Applied Economics*, 42(11), 1387–1396. <https://doi.org/10.1080/00036840701721331>.
- Billingsley, S., 2010. The Post-Communist Fertility Puzzle. *Population Research and Policy Review* 29 (2): 193–231. <https://doi.org/10.1007/s11113-009-9136-7>.
- Bodvarsson, Ö. B., and Van Den Berg, H., 2013. *The Economics of Immigration: Theory and Policy*. New York, NY: Springer New York. <https://doi.org/10.1007/978-1-4614-2116-0>.
- Borensztein, E., De Gregorio, J. and Lee, J.W., 1998. How Does Foreign Direct Investment Affect Economic Growth? *Journal of International Economics* 45 (1): 115–35. [https://doi.org/10.1016/S0022-1996\(97\)00033-0](https://doi.org/10.1016/S0022-1996(97)00033-0).
- Cáceres, L.R. and Nery Saca, N., 2006. *What Do Remittances Do? Analyzing the Private Remittance Transmission Mechanism in El Salvador* (No. 2006/250). International Monetary Fund.
- Catrinescu, N., Leon-Ledesma, M., Piracha, M. and Quillin, B., 2009. Remittances, institutions, and economic growth. *World development*, 37(1), 81–92. <https://doi.org/10.1016/j.worlddev.2008.02.004>.

- Chami, R., Fullenkamp, C. and Jahjah, S., 2003. Are Immigrant Remittance Flows a Source of Capital for Development? *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.463002>.
- Chowdhury, M., 2016. Financial development, remittances and economic growth: Evidence using a dynamic panel estimation. *Margin: The Journal of Applied Economic Research*, 10(1), 35–54.
- De Haas, H., 2007. The impact of international migration on social and economic development in Moroccan sending regions: a review of the empirical literature. *IMI Working Paper Series. International Migration Institute*.
- Driffield, N. and Taylor, K., 2000. FDI and the Labour Market: A Review of the Evidence and Policy Implications. *Oxford Review of Economic Policy* 16(3), 90–103. <https://doi.org/10.1093/oxrep/16.3.90>.
- Easterly, W., 2005a. Chapter 15 National Policies and Economic Growth: A Reappraisal. *Handbook of Economic Growth*, 1015–1059. [https://doi.org/10.1016/S1574-0684\(05\)01015-4](https://doi.org/10.1016/S1574-0684(05)01015-4).
- Eggoh, J., Bangake, C. and Semedo, G., 2019. Do remittances spur economic growth? Evidence from developing countries. *The Journal of International Trade & Economic Development*, 28(4), 391–418. <https://doi.org/10.1080/09638199.2019.1568522>.
- Estes, R. J. 2015. The Index of Social Progress: Objective Approaches (3). In *Global Handbook of Quality of Life*, edited by Wolfgang Glatzer, Laura Camfield, Valerie Møller, and Mariano Rojas, 159–205. Dordrecht: Springer Netherlands. https://doi.org/10.1007/978-94-017-9178-6_8.
- Fagerheim, M.G., 2015. *Impact of Remittances on Economic Growth in ASEAN, an Empirical Analysis*, 1980–2012 Department of Economics, University of Oslo. (Master's thesis).
- Feeny, S., Iamsiraroj, S. and McGillivray, M., 2014. Remittances and economic growth: larger impacts in smaller countries?. *The journal of development studies*, 50(8), 1055–1066. <https://doi.org/10.1080/00220388.2014.895815>.
- Freund, C. and Spatafora, N., 2008. Remittances, Transaction Costs, and Informality. *Journal of Development Economics*, 86 (2), 356–366. <https://doi.org/10.1016/j.jdeveco.2007.09.002>.
- Gapen, M.T., Chami, R., Montiel, P., Barajas, A. and Fullenkamp, C., 2009. Do Workers' Remittances Promote Economic Growth? *IMF Working Papers*, 09 (153), 1. <https://doi.org/10.5089/9781451873009.001>.
- Giuliano, P. and Ruiz-Arranz, M., 2009. Remittances, Financial Development, and Growth. *Journal of Development Economics*, 90 (1), 144–152. <https://doi.org/10.1016/j.jdeveco.2008.10.005>.
- Glytsos, N.P., 2005. The contribution of remittances to growth: A dynamic approach and empirical analysis. *Journal of Economic Studies*, 32 (6), 468–496. <https://doi.org/10.1108/01443580510631379>.
- Goschin, Z., 2014. Remittances as an Economic Development Factor. Empirical Evidence from the CEE Countries. *Procedia Economics and Finance*, 10, 54–60. [https://doi.org/10.1016/S2212-5671\(14\)00277-9](https://doi.org/10.1016/S2212-5671(14)00277-9).
- Goschin, Z., 2013 The remittances as a potential economic growth resource for Romania. *Annales Universitatis Apulensis Series Oeconomica*. 15(2): 655–661

- Goschin, Z. and Roman, M., 2012. Determinants of the remitting behaviour of Romanian emigrants in an economic crisis context. *Eastern Journal of European Studies*, 3(2). 87–103
- Hernández, J.C. and Toledo, W., 2020. The Effect of Remittances on Imports in Eight Latin-American Countries. *Review of Economic Analysis*, 12(3), 255–269. <https://doi.org/10.15353/rea.v12i3.1773>.
- International Monetary Fund, ed. 2014. *Legacies, Clouds, Uncertainties*. World Economic Outlook 2014, Oct. Washington, DC: International Monetary Fund.
- Iordache, M. and Matei, M., 2020. Explaining Recent Romanian Migration: A Modified Gravity Model with Panel Data. *Journal of Social and Economic Statistics*, 9(1), 46–64. <https://doi.org/10.2478/jses-2020-0006>.
- Kratou, H. and Gazdar, K., 2016. Addressing the effect of workers' remittance on economic growth: evidence from MENA countries. *International Journal of Social Economics*, 43(1), 51–70. <https://doi.org/10.1108/IJSE-08-2013-0189>.
- King, R.G. and Levine, R., 1994. Capital Fundamentalism, Economic Development, and Economic Growth. *Carnegie-Rochester Conference Series on Public Policy*, 40, 259–292. [https://doi.org/10.1016/0167-2231\(94\)90011-6](https://doi.org/10.1016/0167-2231(94)90011-6).
- Konte, M., 2018. Do remittances not promote growth? A finite mixture-of-regressions approach. *Empirical Economics*, 54, 747–782. <https://doi.org/10.1007/s00181-016-1224-z>.
- Kreishan, FM., 2011. Economic Growth and Unemployment: An Empirical Analysis. *Journal of Social Sciences* 7 (2): 228–231. <https://doi.org/10.3844/jssp.2011.228.231>.
- Leon-Ledesma, M. and Piracha, M., 2004. International Migration and the Role of Remittances in Eastern Europe. *International Migration* 42(4). 65–83. <https://doi.org/10.1111/j.0020-7985.2004.00295.x>.
- Lupoiu, D.V. and Raceanu, C., 2019. The Economic Impact of Migration in the Era of Globalization. *Proceedings of the International Conference on Applied Statistics*. 1(1). 304–311. <https://doi.org/10.2478/icas-2019-0027>.
- Minh, C.H., 2020. Remittances, foreign direct investment, imports and economic growth: Empirical evidence from Vietnam. *Asian Journal of Economic Modelling*, 8(2), 133–140. <https://doi.org/10.18488/journal.8.2020.82.133.140>.
- Nzima, D., Duma, V. and Moyo, P., 2017. Theorizing Migration-Development Interactions: Towards an Integrated Approach. *Migration and Development* 6(2). 305–318. <https://doi.org/10.1080/21632324.2016.1147897>.
- Papademetriou, D.G. and Martin, P.L. eds. 1991. *The Unsettled Relationship: Labor Migration and Economic Development*. Contributions in Labor Studies, no. 33. New York: Greenwood Press.
- Ramirez, M. D., 2014. Remittances and Economic Growth in Mexico: An Empirical Study with Structural Breaks, 1970-2010. *Business and Economic Research* 4(1). 353. <https://doi.org/10.5296/ber.v4i1.5712>.
- Rapoport, H. and Docquie, F., 2006. Chapter 17 the Economics of Migrants' Remittances. *Handbook of the Economics of Giving, Altruism and Reciprocity*, 1135–1198. [https://doi.org/10.1016/S1574-0714\(06\)02017-3](https://doi.org/10.1016/S1574-0714(06)02017-3).

- Ratha, D., Plaza, S., Kim, E.J, Chandra, V., Kurasha, N. and Pradhan, B., 2023. Migration and Development Brief 38: Remittances Remain Resilient but Are Slowing. *KNOMAD–World Bank*, Washington, DC.
- Roman, M., 2013. Financial Effects of the International Migration in Europe: Modelling the Decision to Remit. *Panoeconomicus* 60(4). 541–555. <https://doi.org/10.2298/PAN1304541R>.
- Roman, M. and Strat, V.A., 2018. Romanian Immigrants and the Inflows of Foreign Direct Investment towards Romania. *Management & Marketing* 13(4). 1226–1241. <https://doi.org/10.2478/mmcks-2018-0033>.
- Soylu, Ö.B., Çakmak, İ. and Okur, F., 2018. Economic growth and unemployment issue: Panel data analysis in Eastern European Countries. *Journal of International Studies*, 11(1). 93–107. <https://doi.org/10.14254/2071-8330.2018/11-1/7>.
- Stark, O., 1991. *The Migration of Labor*. Cambridge, Mass., USA ; Oxford, UK: B. Blackwell.
- Tahir, M., Khan, I. and Shah, A.M., 2015. Foreign Remittances, Foreign Direct Investment, Foreign Imports and Economic Growth in Pakistan: A Time Series Analysis. *Arab Economic and Business Journal* 10(2): 82–89. <https://doi.org/10.1016/j.aebj.2015.06.001>.
- Taylor, J.E., Arango, J., Hugo, G., Kouaouci, A., Massey, D.S. and Pellegrino, A., 1996. International Migration and Community Development. *Population Index* 62(3). 397– 418. <https://doi.org/10.2307/3645924>.