8. FDI OR REMITTANCES FOR SUSTAINABLE EXTERNAL FINANCIAL INFLOWS. THEORETICAL DELIMITATIONS AND PRACTICAL EVIDENCE USING GRANGER CAUSALITY

Valentina VASILE[1]
Daniel ŞTEFAN[2]
Călin-Adrian COMES[3]
Elena BUNDUCHI[4]
Anamari-Beatrice ŞTEFAN[5]

Abstract

FDI and remittances are important sources of economic growth, depending both on national push policies and on the individuals' and companies' interests. The problem approached in this paper is the extent to which FDI inflows in migrant origin countries influence the level, dynamics and sustainability of the remittances received by the households, and whether or not the level of economic development has importance in politicy measures differenciation in the analyzed period (1996-2019). In the present study, based on Dumitrescu-Hurlin Panel Granger causality approach, we highlight to what extent the level of development of the origin country influences the employment decision, namely external mobility for work or employment in the FDI companies. Studying the dependence between FDI stock dynamics and remittances inflows evolution in beneficiary countries, we point: (1) if the attractiveness for FDI in the origin country attenuates the dynamics of the external mobility of the working age population, (2) to which extent a country's GDP/capita level influence the attractiveness for FDI inflows and the level of remittances sent by migrants in the origin countries (3) if the advancement index of the FDI stock dynamics relative to the remittances inflows can be

[1]Institute of National Economy, Romanian Academy. E-mail:valentinavasile2009@gmail.com

[2] „G.E.Palade" University of Medicine, Pharmacy, Sciences and Technologies of Târgu Mureș; Institute of National Economy, Romanian Academy. E-mail:daniel.stefan@umfst.ro

[3] „G.E.Palade" University of Medicine, Pharmacy, Sciences and Technologies of Târgu Mureș; Institute of National Economy, Romanian Academy. E-mail:calin.comes@umfst.ro

[4] „G.E.Palade" University of Medicine, Pharmacy, Sciences and Technologies of Târgu Mureș; Institute of National Economy, Romanian Academy. E-mail:elena.bunduchi@umfst.ro

[5] *****„G.E.Palade" University of Medicine, Pharmacy, Sciences and Technologies of Târgu Mureș. E-mail:beatrice.stefan@umfst.ro

appreciated as a marker for policy measures differentiation in the field of labour market for retaining human capital.

Keywords: economic growth, FDI, remittances, Dumitrescu-Hurlin Granger Panel causality
JEL Classification: C33, F21, F24, F43

1. Introduction

The free movement of people and capital is associated with globalization and optimization of resource allocation as a factor of competitiveness. Globalization has facilitated mobility, but it has also generated adverse effects, such as the increase in inequalities (Dorn et al 2017), the reduction of the education and health services in sending countries (World Bank, 2019a) and strong concentration of wealth (Piketty, 2014; Atkinson et al., 2011; Atkinson, 2015; Bourguignon et al., 2015). Also, an increase in the attractiveness of people's mobility to economically developed countries and the interest of FDI for less developed countries can be observed. The Millennium Goals and Agenda 2030 promote the mitigation of globalization's adverse effects, but economic growth is (still) dominated by financial profitability criteria and comparative cost vs. benefit advantages.

The analysis of conditionality between the external financial flows and the economic growth is an issue intensely discussed in the last years, especially from the viewpoint of their sustainability in a society with major conjunctural events. In addition, given the regional integration efforts of national economies and the convergence process, maintaining macroeconomic balances is a condition for the attractiveness of foreign investors. It is well known that in recent decades the main sources of external financing for developing countries have been the three financial flows - ODA (Official development assistance) flows, FDI (foreign direct investments) and remittances - (OECD, 2020a), and for the other countries (medium developed) predominantly the last two. For less developed countries, the amounts from remittances and FDI have supported economic growth, but from the perspective of employment of the working age population on the national labor market, the effects are different, controversial and extremely volatile.

Better employment abroad or comparative advantages of the jobs in FDI companies in the origin countries – remain among the most important determinants of labour mobility (Garas *et al.*, 2016). The decision for labour external mobility has evolved from the simply (higher) wage level criterium, to integrated benefits for individual/mobile worker and household; from temporary migration, mostly multiannual, to household stability and overall long-lasting quality of life; from simply economic impact, to the integrated social and societal impact and of the cultural model shift. Finally, the cost-benefit analysis on short vs medium and long term is mostly considered in the employment decision at individual level.

The mobility cost of people and capital is increasingly analyzed both at micro level (direct effects of labour mobility and FDI on economic growth) (Comes *et al.*, 2018) at national level (the cost of labour mobility, and the benefits of labour mobility vs. the advantages from supporting FDI, respectively). The national policies are judged and promoted according to the classic theories of economic growth, following the maximization of results and financial effects, i.e. on the annual budget and the balance of payments in the case of FDI vs remittances analysis.

In less developed sending countries, policy decisions, mainly based on immediate financial gains target, as a coverage source of the current government consumption needs (tax

revenues) or of the households (remittances) prevail. In this context, from the business efficiency approach, FDI companies are considered a solid pillar of economic growth based on higher value added of the processing and trade and as potential better employers (Iamsiraroj, 2016). So, in the sending countries the strategic approach of development is conflictual – free movement of people for better jobs abroad vs supporting better employment conditions in the FDI companies for retaining labour force, and youth/graduates on the national labour market.

On the contrary, in the receiving (developed) countries, the impact of migration and of the FDI abroad (outflows) are considered a component of the integrated development policies, by supporting the factors for adjusting the national deficits, such as: a) demographic rejuve¬nation by accepting migrants, more or less selectively, and efforts to integrate/assimilate them; b) relocation of economic activities through FDI in countries with comparative cost advantages of production resources/factors; c) tax optimization by directing businesses/ear¬nings to more advantageous areas; d) extending the use of second-generation technologies by relocating as FDI and accelerating technology transfer to activities in the home country of capital (especially those that meet the current sustainable development requirements), capitalizing on the comparative cost advantage of hiring migrants, etc.

From the viewpoint of our research we started from the hypothesis demonstrated by reality and highlighted by specialists according to which FDI (Das & Sethi, 2020) and remittances (Mehedintu *et al.,* 2020) positively influence the economic growth of the less developed countries. The two external sources dominate the hierarchy of financial inflows, consistently exceeding the level of ODA and portfolio investment (World Bank, 2019b). For this reason, more and more researchers (Arif *et al*., 2018; Combes *et al*., 2019; Comes *et al*., 2018; Driffield & Jones, 2013; Eggohet *et al.,* 2019; Giuliano & Ruiz-Arranz, 2009; Lartey, 2013) analyzed the effects of both variables on the level of economic growth. Researchers such as (Adams & Page, 2005; Azizi, 2018; Inoue, 2018; Vaaler, 2018; Zhunio *et al.,* 2012) suggests that remittances: a) have a positive impact on the reduction of poverty in the migrant's origin country; b) contribute to the living standards increasing of the beneficiary members through access to quality health services; c) have a positive impact on human capital formation by directing higher amount for ensuring access to education for children in the beneficiary families; d) contribute to investments in households (durable goods) or increasing entrepreneurship in small family businesses. Regarding the FDI inflows' impact on economic growth, several mechanisms have been identified in the literature: offset the capital deficit in less developed countries and support domestic investments (Al-Sadig, 2013); compensate the balance of payments by increasing export competitiveness (Moran *et al*., 2018); increase the productivity and knowledge gains through technology transfer and skilled labour forces (Demir & Duan, 2018; Wan, 2010). Moreover, they attract labour force through relatively higher wages than domestic firms (Xu & Hale, 2016).

Thus, the question that arise is to what extent the two external financial sources can be considered sustainable contributors to resilience in the face of economic or humanitarian crises. The analysis of statistical data outlines at least two findings: a) the inverse correlation between the level of economic development (measured by GDP / capita) and the share of remittances in GDP and b) the behavior of foreign investors depend on maintaining comparative cost advantages for production factors (especially labor) and the friendly tax system in the host country. Therefore, from the employment perspective the following issues arise: a) to what extent FDI support efficient employment of domestic labor, with comparative advantages that significantly counterbalance the option of external migration for work with

remittances; b) from which level of salary, safety labour conditions and sustainability of the workplace, the labor force in the host country of FDI opts for returning from external mobility and the new generations of graduates choose the first alternative for employment in their country of origin. The literature has highlighted the influence of the two financial flows on economic growth (Chowdhury, 2016; Herzer et al, 2008; Khurshid et al., 2020; Le, 2009) or FDI on employment (Abor & Harvey, 2008; Estrin, 2017) but the two-way relationship between FDI and remittances was less analyzed (Basnet & Upadhyaya, 2014; Shafqat et al, 2017).

2.Literature review

There are numerous studies in which the causal relationship between remittances and economic growth was analyzed (Ali et al., 2018; Chowdhury, 2016; Herzer et al., 2008; Khurshid et al., 2020; Le, 2009; Raza, 2015; Siddique et al, 2012) and ISD - economic growth, respectively (Abbes *et al.*, 2015; Duarte *et al.*, 2017; Soumaré & Tchana Tchana, 2015), which demonstrate the presence or absence of a Granger causality relationship (Annex 1). Regarding the relationship between FDI and remittances, Shafqat *et al.* (2017) tested the Granger causality for 31 developing countries between 1991 and 2015 and identified a two-way causality. Also, at the level of poor countries, namely 35 countries in Africa, Latin America and Asia-Pacific, Basnet *et al.* (2014) obtained different results depending on the geographic location. The presence of a unidirectional relationship between remittances and FDI for the African countries and lack of any influence on other states, between 1980 and 2010 was identified. Garcia-Fuentes *et al.* (2013) using the GMM-IV method for 15 Latin American and Caribbean countries for the period 1983-2010 demonstrated the positive influence of remittances on FDI in the beneficiary countries. Of course, a number of specific factors influence the two financial flows, but it is important to see to what extent FDI shapes medium and long-term employment model in the host country, respectively - the demand and profile of vocational training, the decision of external mobility for work or of return in the country – remittances being "compensate" by the higher wages in the FDI companies.

Previous research has shown that, on the one hand, the dynamics of the FDI stock structure depends on the legislative framework, the fiscal system and the comparative cost advantages of the factors of production, their territorial mobility being highly influenced by the optimization of economic profit. The job demand is mainly for medium or low skills, often provided by on-the-job training of the native workers. The geographical relocation of FDI according to the dynamics of the conditions offered by the international business environment leads to the lack of security on this financial flow (OECD, 2020b). On the other hand, remittances are just as vulnerable and unsustainable as FDI: a) the longer the mobility for work, the lower the remittances are, because, in the end, the migrant worker remains in the destination country and, therefore, the motivation for remittance decreases or even disappears; b) conjunctural phenomena, such as financial crisis or pandemic crisis force return or relocation of the migrant workers, with important direct negative effects on the level of remittances or, c) change oin employment policy, by increasing the attractiveness of the national labor market (for example in Romania by specific measures for occupational deficits - wages for doctors, tax exemption for IT specialists, etc.).

The value added of this paper is that it analyzes the extent to which the dynamics of the two financial flows influence each other or not, and whether they have a different impact on the sustainability of economic growth, and / or this influence depends on the development level

of the country. Another contribution of this paper is the analysis of these two-dimensional relationships on some European countries, because in the literature mainly less developed / developing countries from Asia and Africa were considered. Regarding the EU area, several recent papers debate the influence of FDI or remittances on economic development in the less developed countries of the region (Apostolopoulos et al, 2020; Cisma et al, 2020; Gherghina et al, 2019) without further analyses on causality betweeh FDI and remittances.

Based on the above considerations, we have defined the purpose of this research, to highlight whether there is a link between the level of FDI stock and external mobility for work output of those who seek to maximize their household incomes from work measured by remittances level. So, concluding, the research questions are:

-To what extent does the level of economic development, reflected in GDP/capita, differentiate the importance of these financial flows for the economic resilience?

- If attracting FDI leads to a decrease in external mobility for work with the main purpose of remittance, respectively to what extent external mobility for remittances is Granger influenced by FDI and if there are significant differences between countries, depending on the level of economic development

3. Description of the data

The database used in the research consists of the following variables: the share of remittances in GDP, the share of FDI in GDP and GDP per capita, which have as source the World Bank Indicators (World Bank, 2020b, 2020c, 2020a). The aim was to observe the significance and relevance of FDI, and remittances received by each country, considering the share in GDP, not their volume. The period analyzed ranges between 1996 and 2019; the research started with 1996 because most of the states included in the study, with former communist regime, reached functioning market economy after a transition period in the first years of the last decade of the XX-th century.

The countries included in the research are the EU Member States, from which we eliminated Luxembourg and Ireland as a result of the outlier behavior. Additionally, three non-Member States (R. Moldova, Ukraine and Turkey) were added to our sample, due to the fact that they have a migratory behavior similar to the one of the Member States located in Central and Eastern Europe and more than 50% of their migrant population has chosen EU Member States as destinations. Although Serbia has a similar behavior with the 3 non-EU member states included in the research, the availability of data only from 2007 did not allow us to include it in the analysis. Although the countries were, as preliminary approach, analyzed together, their behavior and specificity required clustering. Thus, the 29 countries were clustered into 3 sets of panel data depending on the level of economic development (Annex 2), expressed in GDP per capita (Panel 1, countries with a GDP / capita level below half of the EU average, the second, with GDP / capita between half and the EU average level and Panel 3, with GDP / capita above the EU average).

As Figure 1 shows, the evolution of the share of remittances and FDI in GDP is relatively constant with some modest fluctuations over the analyzed period, of around 10% of GDP, in the case of some countries, such as: Croatia, Latvia, Lithuania, Poland, Slovakia, Ukraine, Romania and Turkey. In the case of Estonia, Bulgaria or Hungary, we found that the share of FDI exceeds the share of remittances in GDP. In the case of Hungary, we observed a significant reduction in the share of FDI in GDP over the period 2007-2010, generated by

the economic crisis and, after that, a rapid growth between 2015 and 2017 due to significant investments made by Germany. However, in the case of Republic of Moldova there is an contrary picture, being noticed that the share of remittances exceeded the share of FDI in GDP. This demonstrates the long-term high dependency of the Republic of Moldova on remittances, as the main external financial inflow.

Figure 1

The evolution of the share of remittances and FDI in GDP, 1996-2019 (%)
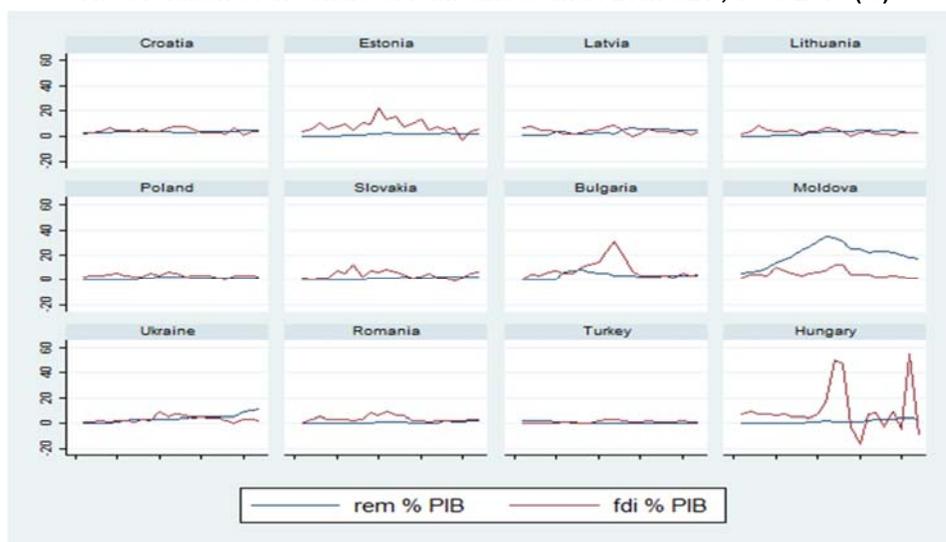
Source: Author's calculation based on World Bank data. Available on World Bank (World Bank, 2020c, 2020a).

For countries from Panel 2 we notice that the two types of external financial flows have a lower share in GDP as compared to the countries in Panel 1, due to the fact that in these countries the level of GDP is higher (Annex 3). The exceptions were Malta and Cyprus, where the share of FDI in GDP exceeded 400% in 2007 and 200% in 2012 in Cyprus, respectively. In all the countries listed in Panel 2, the share of FDI exceeds the share of remittances in GDP (Figure 2).

In the case of the countries in Panel 3, the decreasing tendency of the share of remittances and FDI in GDP is maintained. In all the countries in this panel, the share of remittances in GDP is below 1% throughout the analyzed period, except for Belgium, where it oscillates around 2%. The evolution of FDI is more volatile, registering important changes between countries and even within the same country during the analyzed period (Figure 3).

As a general conclusion we noticed the decreasing share of remittances and the higher yearly oscilation of the FDI flows share in the GDP.

Figure 2

The evolution of the share of remittances and FDI in GDP for the countries in Panel 2 in 1996-2019, %
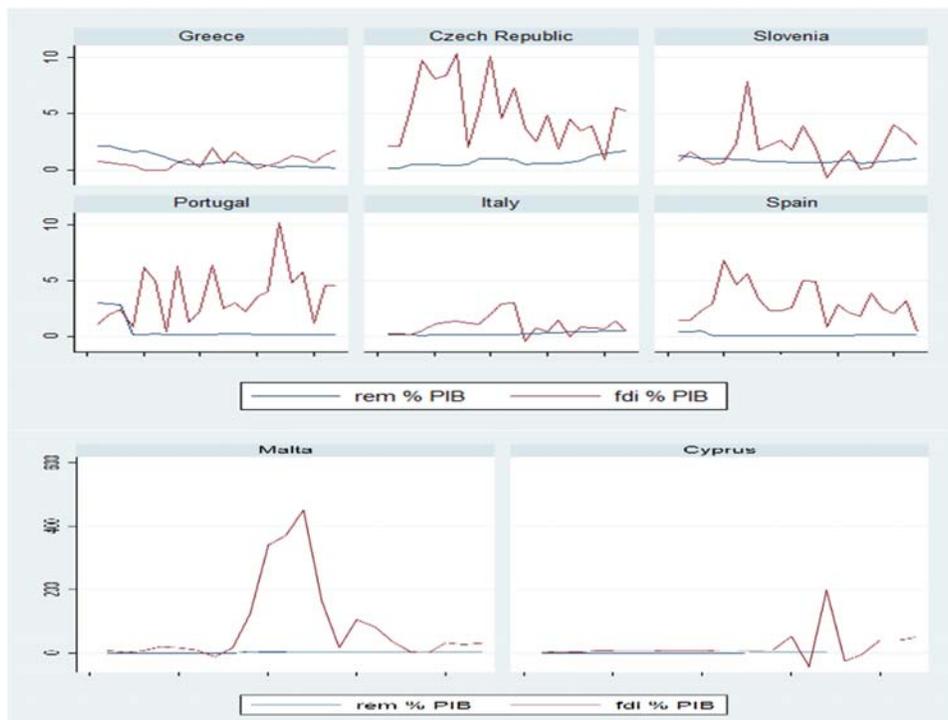
Source: Author's calculation based on World Bank data. Available on World Bank (World Bank, 2020c, 2020a).

Figure 3

The evolution of the share of remittances and FDI in GDP for the countries in Panel 3 in 1996-2019, %
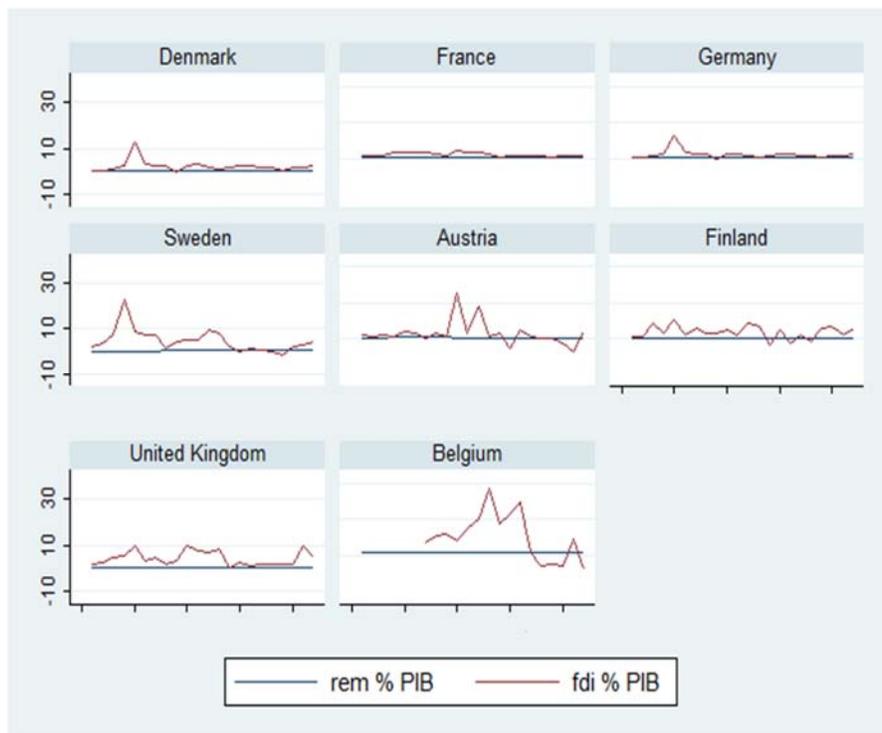
Source: Author's calculation based on World Bank data. Available on World Bank (World Bank, 2020c, 2020a).

Selected database limitation consists of the following aspects:

- We considered the total number of migrants, without differentiating according to the main purpose of the mobility for work, and for incomes vs. for career development, respectively, knowing that migration for relatively higher incomes is more intense as the PIB/capita in sending countries is lower (wage differential as push factor)

- We considered only the total amount of registered remittances (transmitted through official channels). According to experts (IMF, 2009; World Bank, 2010), informal remittances are increasing with at least a half total amount of money transferred by migrants into the origin countries. On the other hand, remittances are not important for those migrating for a professional career – mainly high skilled workers or part of the brain drain category; their share in total migrants is inversely correlated with the level of economic development of the origin country.

- The relevance of the national policies in both cases is limited, usually the expected effect is much lower than the real one because the decision of the individuals for investment, and mobility, respectively, prevails over the national interest.

4. Research metodology

Our Panel1, Panel2, and Panel3, are balanced, because they have the same number of observations. To fit a model with cross-sectional correlation we developed panel equations given by:

$$gdp_{i,t} = \alpha_1 + rem_{i,t} \cdot \beta_1 + \varepsilon_{1i,t} \tag{1.1}$$

$$gdp_{i,t} = \alpha_2 + fdi_{i,t} \cdot \beta_2 + \varepsilon_{2i,t} \tag{1.2}$$

$$gdp_{i,t} = \alpha_3 + rem_{i,t} \cdot \beta_1 + fdi_{i,t} \cdot \beta_2 + \varepsilon_{3i,t} \tag{1.3}$$

where $gdp_{i,t}, rem_{i,t}$, and, $fdi_{i,t}$ are with $t = \overline{1,T}$, $i = \overline{1,N}$ (i – number of panels, and i number of observations for panel i)

We first analyzed the hypotheses to test the fixed or random effects for the panels data. The first steps were performed to test unit roots according to Vasile *et al*. (2020) with **xtunitroot** package, Levin–Lin–Chu test. Subsequently, we tested whether Panel 1, Panel 2, and Panel 3 show fixed or random effects, but without statistical significance. In our scientific approach we tested whether Panel1, Panel2, and Panel3 show heteroskedasticity with **xttest3** developed by Baum (2001) package from STATA™, after all **xtreg** and **xtgls** regressions tests.

Because our panel data show the phenomenon of heterogeneity, we continued to use the Dumitrescu-Hurlin-Granger model (Hurlin & Dumitrescu, 2012), through the **xtgcause** (Lopez & Weber, 2017) package from STATA™.

Given two panel events $rem_{i,t}, t = \overline{1,T}$, $i = \overline{1,N}$, and $fdi_{i,t}, t = \overline{1,T}$, $i = \overline{1,N}$ a natural extensions of the Granger Causality (Granger, 1969) is a different category of Granger causality, named Dumitrescu-Hurlin Granger panel causality (DHG). It can be a unilateral causality $fdi_{i,k} \leftarrow rem_{i,k}$, $fdi_{i,k} \rightarrow rem_{i,k}$, or bilateral causality $fdi_{i,k} \leftrightarrow rem_{i,k}$, and with circular permutation for gdp if and only if we have statistical signification for $\alpha_i, \beta_{i,k}, \gamma_{i,k}, k = \overline{1,s}$ parameters in (2.1), (2.2), (2.3), and (2.4) regressions, where given s is the lag:

$$fdi_{i,t} = \alpha_i + \sum_{k=1}^{s} \beta_{i,k} fdi_{i,t-k} + \sum_{k=1}^{s} \gamma_{i,k} rem_{i,t-k} + \epsilon_{1i,t} \tag{2.1}$$

$$rem_{i,t} = \alpha_i + \sum_{k=1}^{s} \beta_{i,k} rem_{i,t-k} + \sum_{k=1}^{s} \gamma_{i,k} fdi_{i,t-k} + \epsilon_{2i,t} \tag{2.2}$$

$$gdp_{i,t} = \alpha_i + \sum_{k=1}^{s} \beta_{i,k} gdp_{i,t-k} + \sum_{k=1}^{s} \gamma_{i,k} fdi_{i,t-k} + \epsilon_{3i,t} \tag{2.3}$$

$$gdp_{i,t} = \alpha_i + \sum_{k=1}^{s} \beta_{i,k} gdp_{i,t-k} + \sum_{k=1}^{s} \gamma_{i,k} rem_{i,t-k} + \epsilon_{4i,t} \tag{2.4}$$

The presence of the restriction implied by cross-sectional dimension N and time dimention T of our panel data requests the use of LLC test (Levin et al, 2002). In these hypotheses, according to Hurlin & Dumitrescu (2012) it's intuitively assumed the presence or absence of DHG. In this regard, while the absence of DHG causality, namely H_0 is just as simple as the simultaneous necessity of non-causality in all cross-sections. In case of alternative

assumptions H_{a1} or H_{a2}, the presence of DHG causality is different, we must assume that DHG simultaneously occurs in all cross sections.

5.Results and discussions

Initially, in order to determine the existence of Dumitrescu – Hurlin Granger Panel causality it is important to check the panel data stationarity to avoid the wrong estimations of the variable parameters (Annex 4). The results obtained by applying the Levin-Lin-Chu stationarity test allows us to continue the causality analysis as the adjusted t-test tend to -∞ , thus rejecting the null hypothesis to which the data is non-stationary. The value lower than 0.05 of the p-value supports the results of the adjusted t-test, so we conclude that the variables in the three panel data sets are stationary. Therefore, we can continue the econometric analysis by applying GLS to identify the impact of FDI and remittances on economic growth.

Table 1

Impact of FDI and remittances on GDP/capita using GLS all countries

	Coefficients	Standard error	t test	p-value
Panel 1 (< ½ EU average)				
Intercept	9.835842	0.0384939	255.52	0.000 ***
FDI	0.0024591	0.000991	2.48	0.013*
Remittance	-0.1124809	0.0082631	-13.61	0.000***
p-value 0.0000				

Source: Authors calculations.

Due to the fact that the data included in the analysis are stationary, and following the application of GLS on the 29 countries, we find that the model is statistically significant (Table 1), and we decided to continue the analysis by clustering countries, taking into account the level of economic development (Table 2).

Table 2

Impact of FDI and remittances on GDP/capita using GLS

	Coefficients	Standard error	t test	p-value
Panel 1 (< ½ EU average)				
Intercept	8.866255	0.651269	136.14	0.000***
FDI	0.0185197	0.0069444	2.67	0.008**
Remittance	-0.052797	0.0082551	-6.40	0.000***
p-value 0.0000				
Panel 2 (½EU average; EU average)				
Intercept	9.913034	0.0408967	242.39	0.000
FDI	0.0006795	0.0005432	1.25	0.211
Remittance	-0.0300648	0.0380047	-0.79	0.429
p-value 0.4464				
Panel 3 (>EU average)				
Intercept	10.56664	0.0285455	370.17	0.000
FDI	0.0028821	0.0016488	1.75	0.080
Remittance	-0.0031157	0.0345528	-0.09	0.928
p-value 0.2144				

Source: Authors calculations.

We notice that remittances do not contribute, on average, to the economic growth in all the analyzed countries, but only in countries from Panel 1. The obtained results confirm the theory according to which remittances have an immediate and short-term impact on the economic growth of the recipient country as a result of their predominance towards consumption. This phenomenon is encountered especially in the developing countries (Panel 1). As far as FDI is concerned, different results are obtained. The experienced impact by the beneficiary economies is not immediate, a long-term relationship between the two variables is shown. The econometric analysis shows a delayed impact of FDI on GDP. Thus, it is necessary to introduce a 3-year lag for Panel 1 and 3, so that we can quantify their effect. The reason for imposing this lag is the length of time interval required for a productive FDI to generate economic impact in the recipient country, in the form of output, wages and tax implications. For the countries in Panel 2, whose GDP/capita is below the EU average, but exceeds half the average, we may see, on average, the lack of any influence of FDI on economic growth. This can be explained by the fact that in some countries the share of FDI in GDP is insignificant as compared to remittances (Annex 5).

GLS presents the impact of independent variables, on average, in order to observe the impact for each country we applied the Dumitrescu-Hurlin Panel Granger causality test.

Table 3

Dumitrescu-Hurlin Panel Granger causality test, by country (GDP/capita - remittances)

Countries	p-value	Results	Causality
Panel 1 (< ½ EU average)			
Moldova	0.0000	Rem Granger cause GDP/capita	Bidirectional
	0.0000	GDP/capita Granger cause Rem	
Ukraine	0.0000	Rem Granger cause GDP/capita	Bidirectional
	0.0000	GDP/capita Granger cause Rem	
Bulgaria	0.0000	Rem Granger cause GDP/capita	Bidirectional
	0.0000	GDP/capita Granger cause Rem	
Turkey	0.0000	Rem Granger cause GDP/capita	Bidirectional
	0.0000	GDP/capita Granger cause Rem	
Romania	0.0000	Rem Granger cause GDP/capita	Bidirectional
	0.0000	GDP/capita Granger cause Rem	
Croatia	0.0000	Rem Granger cause GDP/capita	Bidirectional
	0.0000	GDP/capita Granger cause Rem	
Poland	0.0000	Rem Granger cause GDP/capita	Bidirectional
	0.0000	GDP/capita Granger cause Rem	
Hungary	0.0000	Rem Granger cause GDP/capita	Bidirectional
	0.0000	GDP/capita Granger cause Rem	
Latvia	0.0000	Rem Granger cause GDP/capita	Bidirectional
	0.0000	GDP/capita Granger cause Rem	
Lithuania	0.0000	Rem Granger cause GDP/capita	Bidirectional
	0.0000	GDP/capita Granger cause Rem	
Slovakia	0.0000	Rem Granger cause GDP/capita	Bidirectional
	0.0000	GDP/capita Granger cause Rem	
Estonia	0.0000	Rem Granger cause GDP/capita	Bidirectional
	0.0000	GDP/capita Granger cause Rem	
Panel 2 (½EU average; EU average)			
Greece	0.0032	Rem Granger cause GDP/capita	Bidirectional

Countries	p-value	Results	Causality
	0.0046	GDP/capita Granger cause Rem	
Czech Republic	0.0007	Rem Granger cause GDP/capita	Bidirectional
	0.0133	GDP/capita Granger cause Rem	
Portugal	0.0031	Rem Granger cause GDP/capita	Unidirectional
	0.1308	GDP/capita does not Granger cause Rem	
Slovenia	0.0288	Rem Granger cause GDP/capita	Unidirectional
	0.1127	GDP/capita does not Granger cause Rem	
Cyprus	0.0087	Rem Granger cause GDP/capita	Bidirectional
	0.0094	GDP/capita Granger cause Rem	
Malta	0.0027	Rem Granger cause GDP/capita	Unidirectional
	0.8133	GDP/capita does not Granger cause Rem	
Spain	0.0005	Rem Granger cause GDP/capita	Bidirectional
	0.0076	GDP/capita Granger cause Rem	
Italy	0.0422	Rem Granger cause GDP/capita	Bidirectional
	0.0014	GDP/capita Granger cause Rem	
Panel 3 (>EU average)			
France	0.0038	Rem Granger cause GDP/capita	Bidirectional
	0.0003	GDP/capita Granger cause Rem	
UK	0.0309	Rem Granger cause GDP/capita	Bidirectional
	0.0002	GDP/capita Granger cause Rem	
Germany	0.0556	Rem Granger cause GDP/capita	Bidirectional
	0.0000	GDP/capita Granger cause Rem	
Finland	0.0103	Rem Granger cause GDP/capita	Bidirectional
	0.8671	GDP/capita Granger cause Rem	
Austria	0.0096	Rem Granger cause GDP/capita	Bidirectional
	0.0393	GDP/capita Granger cause Rem	
Netherlands	0.0214	Rem Granger cause GDP/capita	Bidirectional
	0.6815	GDP/capita Granger cause Rem	
Sweden	0.0200	Rem Granger cause GDP/capita	Bidirectional
	0.0467	GDP/capita Granger cause Rem	
Denmark	0.0460	Rem Granger cause GDP/capita	Bidirectional
	0.0893	GDP/capita Granger cause Rem	
Belgium	0.0091	Rem Granger cause GDP/capita	Bidirectional
	0.0004	GDP/capita Granger cause Rem	

Being analyzed individually, we observe bidirectional Dumitrescu-Hurlin Granger causality between remittances and GDP/capita for all the analyzed countries. In the case of less developed (GDP/capita < ½ EU average*)* and developed (GDP/capita >EU average) countries the relationship is much stronger. The obtained results confirm the findings of Ali *et al.* (2018), Raza (2015) and Siddique *et al.* (2012) that show a two-way causality between the level of economic development and remittances. This implies that remittances inflows contribute to economic growth and are mainly directed towards consumption in the less developed countries.

With all, we notice that the level of economic development of the origin countries leads to migration for higher earnings instead of employment on the national labour market. In contrast, in the developed countries the motivation for migration is different - professional development.

Table 4

Dumitrescu-Hurlin Panel Granger causality test, by country (GDP/capita - FDI)

Countries	p-value	Results	Causality
Panel 1 (< ½ EU average)			
Moldova	0.0043	FDI Granger cause GDP/capita	Unidirectional
	0.3126	GDP/capita does not Granger cause FDI	
Ukraine	0.0075	FDI Granger cause GDP/capita	Unidirectional
	0.5940	GDP/capita does not Granger cause FDI	
Bulgaria	0.0003	FDI Granger cause GDP/capita	Bidirectional
	0.0153	GDP/capita Granger cause FDI	
Turkey	0.0075	FDI Granger cause GDP/capita	Unidirectional
	0.0794	GDP/capita does not Granger cause FDI	
Romania	0.0005	FDI Granger cause GDP/capita	Unidirectional
	0.1452	GDP/capita does not Granger cause FDI	
Croatia	0.0057	FDI Granger cause GDP/capita	Unidirectional
	0.2444	GDP/capita does not Granger cause FDI	
Poland	0.0007	FDI Granger cause GDP/capita	Unidirectional
	0.5990	GDP/capita does not Granger cause FDI	
Hungary	0.0092	FDI Granger cause GDP/capita	Unidirectional
	0.4319	GDP/capita does not Granger cause FDI	
Latvia	0.0001	FDI Granger cause GDP/capita	Bidirectional
	0.0282	GDP/capita Granger cause FDI	
Lithuania	0.0014	FDI Granger cause GDP/capita	Unidirectional
	0.1727	GDP/capita does not Granger cause FDI	
Slovakia	0.0032	FDI Granger cause GDP/capita	Unidirectional
	0.1823	GDP/capita does not Granger cause FDI	
Estonia	0.0045	FDI Granger cause GDP/capita	Unidirectional
	0.6397	GDP/capita does not Granger cause FDI	
Panel 2 (½EU average; EU average)			
Greece	0.0000	FDI Granger cause GDP/capita	Bidirectional
	0.0166	GDP/capita Granger cause FDI	
Czech Republic	0.0000	FDI Granger cause GDP/capita	Bidirectional
	0.0029	GDP/capita Granger cause FDI	
Portugal	0.0000	FDI Granger cause GDP/capita	Bidirectional
	0.0303	GDP/capita Granger cause FDI	
Slovenia	0.0000	FDI Granger cause GDP/capita	Bidirectional
	0.0068	GDP/capita Granger cause FDI	
Cyprus	0.0000	FDI Granger cause GDP/capita	Bidirectional
	0.0269	GDP/capita Granger cause FDI	
Malta	0.0000	FDI Granger cause GDP/capita	Bidirectional
	0.0005	GDP/capita Granger cause FDI	
Spain	0.0000	FDI Granger cause GDP/capita	Bidirectional
	0.0121	GDP/capita Granger cause FDI	
Italy	0.0000	FDI Granger cause GDP/capita	Unidirectional
	0.1509	GDP/capita does not Granger cause FDI	
Panel 3 (>EU average)			
France	0.0000	FDI Granger cause GDP/capita	Unidirectional
	0.1240	GDP/capita does not Granger cause FDI	
UK	0.0000	FDI Granger cause GDP/capita	Unidirectional

Countries	p-value	Results	Causality
	0.3995	GDP/capita does not Granger cause FDI	
Germany	0.0000	FDI Granger cause GDP/capita	Unidirectional
	0.1949	GDP/capita does not Granger cause FDI	
Finland	0.0000	FDI Granger cause GDP/capita	Unidirectional
	0.2240	GDP/capita does not Granger cause FDI	
Austria	0.0000	FDI Granger cause GDP/capita	Unidirectional
	0.2016	GDP/capita does not Granger cause FDI	
Netherlands	0.0000	FDI Granger cause GDP/capita	Unidirectional
	0.4199	GDP/capita does not Granger cause FDI	
Sweden	0.0000	FDI Granger cause GDP/capita	Unidirectional
	0.3058	GDP/capita does not Granger cause FDI	
Denmark	0.0000	FDI Granger cause GDP/capita	Unidirectional
	0.3293	GDP/capita does not Granger cause FDI	
Belgium	0.0000	FDI Granger cause GDP/capita	Unidirectional
	0.1616	GDP/capita does not Granger cause FDI	

The same Dumitrescu –Hurlin Panel Granger causality analysis performed for the binomial FDI-GDP/capita shows a similar situation as compared to the relationship between remittances and GDP/capita. We found that FDI contribute to the economic growth of beneficiary countries in all analyzed countries (Table 4). Their level of development is attractive to FDI companies as a result of labour cost differentials in those markets. Concerning Panel 3, the obtained results show no causality between economic growth and FDI (Annex 6) as a result of the fluctuating evolution of these external sources of capital.

In order to answer the research questions, we continue to analyze the causal relationship between FDI and remittances (Table 5).

Table 5

Granger Dumitrescu-Hurlin Causality Test for ISD-Remittances

	Z-bar	Z-bar tilde	Lags (AIC)
Panel 1 (< ½ EU average)			
FDI → Rem	16.2014***	2.4403**	AIC 6
Rem → FDI	6.7414***	0.5483	AIC 6
Panel 2 (½EU average; EU average)			
FDI → Rem	2.3478**	1.7555	AIC 1
Rem → FDI	25.3434***	14.6821***	AIC 4
Panel 3 (>EU average)			
FDI → Rem	8.5656***	1.0206***	AIC 6
Rem → FDI	8.2617***	0.9595***	AIC 6

The Dumitrescu-Hurlin Panel Granger causality analysis revealed differentiated results per country, respectively, we may see a bidirectional causality between FDI and remittances in the case of Bulgaria, Turkey (Panel 1), Cyprus, Malta (Panel 2), and Austria (Panel 3).

The absence of Dumitrescu-Hurlin panel Granger causality between the variables can be explained by the following:

a) the higher the level of economic development, the lower the share of remittances in the GDP, since migrants seeking higher wages are proportionally lower than those primarily pursuing professional and career development;

b) FDI in the developed countries are highly selective, the criteria of economic benefits from low costs related to factors of production do not generate significant profitability; and in this case, their contribution to national output is lower than in the developing countries that are dominated by FDI in the contribution to gross value added.

The share of FDI impact on the total business environment - expressed by output indicators (investment, employment and contribution to GDP), in Panel 3 is relatively lower than in Panels 1 and 2.

At the same time, FDI companies are more selective depending on their field of activity. They enter to the destination countries markets on complementarity principle, focusing on the extreme segments of the business environment, namely in manufacturing industries, promoting high-tech technologies and facilitating innovation in joint ventures or, contrary, in the area of services, with the promotion of employment of first- and second-generation migrants.

Table 6

Dumitrescu-Hurlin Panel Granger causality test by country (FDI – remittances)

Countries	p-value	Results	Causality
Panel 1 (< ½ EU average)			
Moldova	0.009	FDI Granger cause Rem	Unidirectional
	0.0667	Rem does not Granger cause FDI	
Ukraine	0.001	FDI Granger cause Rem	Unidirectional
	0.7656	Rem does not Granger cause FDI	
Bulgaria	0.000	FDI Granger cause Rem	Bidirectional
	0.0091	Rem Granger cause FDI	
Turkey	0.0181	FDI Granger cause Rem	Bidirectional
	0.0181	Rem Granger cause FDI	
Romania	0.1844	FDI Granger cause Rem	Unidirectional
	0.640	Rem does not Granger cause FDI	
Croatia	0.7759	FDI does not Granger cause Rem	-
	0.862	Rem does not Granger cause FDI	
Poland	0.6632	FDI does not Granger cause Rem	-
	0.871	Rem does not Granger cause FDI	
Hungary	0.7260	FDI does not Granger cause Rem	-
	0.672	Rem does not Granger cause FDI	
Latvia	0.3910	FDI does not Granger cause Rem	-
	0.069	Rem does not Granger cause FDI	
Lithuania	0.5405	FDI does not Granger cause Rem	-
	0.156	Rem does not Granger cause FDI	
Slovakia	0.3972	FDI does not Granger cause Rem	Unidirectional
	0.022	Rem Granger cause FDI	
Estonia	0.1414	FDI does not Granger cause Rem	-
	0.113	Rem does not Granger cause FDI	
Panel 2 (½ EU average; EU average)			
Greece	0.0000	FDI Granger cause Rem	Unidirectional
	0.1265	Rem does not Granger cause FDI	

Countries	p-value	Results	Causality
Czech Republic	0.0000	FDI Granger cause Rem	Unidirectional
	0.3114	Rem does not Granger cause FDI	
Portugal	0.0000	FDI Granger cause Rem	Unidirectional
	0.6772	Rem does not Granger cause FDI	
Slovenia	0.0000	FDI Granger cause Rem	Unidirectional
	0.6262	Rem does not Granger cause FDI	
Cyprus	0.0003	FDI Granger cause Rem	Bidirectional
	0.0000	Rem Granger cause FDI	
Malta	0.0047	FDI Granger cause Rem	Bidirectional
	0.0000	Rem Granger cause FDI	
Spain	0.0003	FDI Granger cause Rem	Unidirectional
	0.1517	Rem does not Granger cause FDI	
Italy	0.0000	FDI Granger cause Rem	Unidirectional
	0.9279	Rem does not Granger cause FDI	
Panel 3 (>EU average)			
France	0.0027	FDI Granger cause Rem	Unidirectional
	0.0664	Rem does not Granger cause FDI	
UK	0.0001	FDI Granger cause Rem	Unidirectional
	0.6168	Rem does not Granger cause FDI	
Germany	0.0005	FDI Granger cause Rem	Unidirectional
	0.7467	Rem does not Granger cause FDI	
Finland	0.4709	FDI does not Granger cause Rem	Unidirectional
	0.8408	Rem does not Granger cause FDI	
Austria	0.0031	FDI Granger cause Rem	Bidirectional
	0.0199	Rem does not Granger cause FDI	
Netherlands	0.4879	FDI does not Granger cause Rem	-
	0.2880	Rem does not Granger cause FDI	
Sweden	0.0022	FDI Granger cause Rem	Unidirectional
	0.1711	Rem does not Granger cause FDI	
Denmark	0.0071	FDI Granger cause Rem	Unidirectional
	0.6761	Rem does not Granger cause FDI	
Belgium	0.0019	FDI Granger cause Rem	Unidirectional
	0.5022	Rem does not Granger cause FDI	

Promoted public policies are based on the two factors of development. Instead, the preoccupation of choosing occurs, under certain circumstances and with some limits of development/growth, between the policy of directing own capital towards the less developed countries generating FDI in migrant workers' countries of origin and the policy of supporting their attraction for the national market and with employment in their own labour market. Therefore, opportunity analysis is developed in promoting national support policies, primarily motivated by the costs, and the estimated total benefits on the medium and long term, such as the migrants' integration and the labour market rejuvenation. Migrants significantly reduce the amount of remittances on long term and remain active on the destination country labour market, because of the higher wages although they may face wage discrimination.

The benefits of migrants for the destination country are significant - on the short and medium term the employment deficit is covered, the competition for productivity is stimulated even among migrants, and in the long run the demographic deficit improves by population rejuvenation. Moreover, even if conflicting opinions may occur, reality has shown that

migrants who contribute to tax revenues, receive less social benefits than the natives (Huber & Oberdabernig, 2016). Therefore, the presence of FDI companies retains to a certain extent the potential migrant labour force, associating with this decision also the social advantages - the possibility of staying with the family.

The analysis also identified that FDI Granger cause remittances in almost all the countries where we have a unidirectional causality, except for Slovakia, where remittances Granger cause FDI. This reverse Granger causality is quite controversial from the viewpoint of the economic interpretation and requires various approaches, but it also completes the analysis with additional information. The higher the income differential between the origin and destination country, the more attractive the decision to migrate and remit becomes (Bunduchi *et al.*, 2019). If the wage differential offered by the FDI companies is relatively modest, the option of international labour mobility is stronger, even if it involves accepting multiple social risks both in the home country (family breakdown) and in the destination country (ethnic attitudes, discrimination on the labour market, etc.).

6. Conclusions

FDI and remittances are important sources of economic growth, depending both on national policies and on the individuals' and companies' interests. Generally, countries' interests are differentiated on a) the level of economic development, b) the natural and human resources availability, and c) on the policy measures addressed to different stakeholders - individuals, companies, etc. Developed countries aim to optimize the economic growth through repatriated profit produces in FDI companies and/or by covering the employment deficit on the internal labour market with migrants, through advantages from wage differentials comparative with the natives. Developing countries attract FDI through a) friendly legislation, and b) comparative lower costs of the production factors - material and human resources. However, poorly developed countries registered strong adverse effects due to the wage differential with similar jobs on the external labour markets. The loss of human resources through migration determines increased employment deficit, but also accelerates the demographic aging.

In the origin countries, for similar jobs, wages in the FDI companies are relatively higher than in firms with domestic capital, but income differentials remain high as compared to the jobs abroad. Moreover, the price convergence for goods and services in the EU area is more dynamic than the wage convergence, so the net income differential is more important and, as a consequence, the labour mobility is more attractive than employment in the FDI companies. In the host, developed countries, migrants receive lower wages than the native workers for the same job position. The decision-making at national level in this case is to analyze if business delocalization to lower developed countries is, globally, more profitable than accepting migrants. Moreover, for the medium and low-skilled labour force, the wage differential overrides the importance of career development and facilitates the "opportunity" professional conversion, respectively, with training at the workplace, for minimal skills and practical competencies, according to job's requirements.

Following Dumitrescu-Hurlin Panel Granger test, we found that the level of economic development of the analyzed countries influences the intensity of causality relationship between FDI and remittances. In some developing countries from Panel 1 we found a bidirectional causality between FDI and remittances and in others we notice that FDI Granger cause remittances. A lack of any relationship is shown in the case of Portugal and Slovenia. Similarly, these results are obtained in the case of most developed countries of

the European Union (Panel 3). In conclusion, from the viewpoint of the research methods for the multidimensional analysis of the FDI-remittance relationship, a mix of methods is needed, among which Dumitrescu-Hurlin Granger causality could be considered.

Regarding public policies profile, an integrated approach is recommended, mainly due to remittances inflow fragile sustainability. Several of our conclusions support a differentiated and flexible national policy for increasing employment efficiency of the potential labour force, based on decent wage level and attractive jobs positions for career advancement:

Some final remarks might be considered:

- Although each of the two financial flows has its own determinants and their dynamics depends on factors such as national support policies, job quality, level of remuneration, the need to finance household costs or cost efficiency of the value chain of FDI companies, it is found that there is a two-way influence between FDI dynamics and labor migration for remittance, the effect of FDI inflows influencing remittance dynamics on the medium term;

- FDI has the capacity to retain a medium and low-skilled workforce in the country of origin, differentiated by branches of activity and professional fields, but the influence is weak and with lag of over 3 years; return migration is weak, the motivation of higher comparative incomes from external mobility remaining the main factor of importance for migrant workers;

- the volatility of remittances and FDI is influenced both by economic crises and, more recently, by pandemics, as well as by the comparative cost-benefit advantages on different markets - of the production factors and / or of the products / services. Both the literature and the analysis of the data in this paper support the conclusion that there are no solid arguments for the sustainability of these flows in dynamic economies, less developed, with clear objectives of economic convergence; market competitiveness for FDI and higher migration earnings from migration remain the main foundations for the consolidation or not of FDI in the host country or for the naturalization or return from mobility of migrant workers, respectively;

- the impact of FDI and remittances on economic resilience is relatively weak and inversely correlated with the level of economic development expressed by GDP / capita;

- the two-way influence between the analyzed financial flows is significant mainly on the medium term and has intensified in recent years; practically it is autonomous on the impact sub-models, depending on the level of economic development and the share of these financial flows in GDP.

The general opinion is that both financial external flows depend mainly on the national policies in the developed countries, namely on the comparative advantages from FDI outflows in migrants' origin countries vs migrants' employment. The answer is based on a) labour market segmentation and profit maximization, and b) lower macroeconomic volatility of the developed economies in present globalization stage (Harchaoui, 2019). The integrated benefits are significant - the employment deficit is covered, the competition for productivity is stimulated even between migrants, as short and medium term effects, and in the long term the demographic deficit is improved by rejuvenating the population and increasing the incomes spent in the country of adoption by reducing or ceasing remittance. In addition, although there are opposite opinions of the experts, the reality has shown that the migrants benefit less from social assistance than the natives and contribute to tax revenues in the destination country.

For the countries in Panels 1 and 2, the individual's decision, of the labour force, to become a migrant or an employee in the FDI companies predominates. The higher the income differential between the origin and the destination country, the stronger the employment decision on the international labour market is. Granger causality is bilateral because volatility of economic development is higher. If the income differential offered by FDI companies is relatively modest, the decision for international mobility for work is stronger, even in the situation of accepting multiple social risks, both in the origin (leaving children at home) and in the destination country (social exclusion, labour market discrimination, etc.). For the less developed countries, the long-term integrated economic policies represent the only solution to avoid increasing the employment deficit and skills mismatch on the national labour market, to mitigate the dynamics of demographic aging, and to limit the increase in the real convergence gaps.

The importance of the research results lies in the following considerations, namely recommendations for possible adjustments of public policies:

- the need to optimize the capitalization of labor resources through decent employment on the national market in the less developed countries, as a factor of sustainable economic growth,

- reducing the vulnerability of migrant workers through public policies to stimulate the return to the country of origin and their employment in efficient and remunerative businesses, including FDI companies,

- prioritizing the objectives of ensuring robust and resilient economic growth, namely changing the paradigm of attracting external financial flows, from pursuing immediate effects to consolidating FDI by reinvesting profit and sustaining medium and long term macroeconomic balances (for example in Romania the profit from companies with FDI is in proportion of 3/4 repatriated, the investments being only for survival - Zaman & Vasile, 2012).

The present analysis highlighted the need for a differentiated approach to the problem of attracting FDI, depending on the development level of the host country - by their nature, industry profile and employability. Also the employment profile in the FDI companies might be consider for future reseach, according to at least the following characteristics - native vs. migrant worker, level of qualification, duration of employment, comparative advantage of costs for the employer and of incomes for employees, and in correlation with immigration policies.

References

Abbes, S.M., Mostéfa, B., Seghir, G. and Zakarya, G.Y., 2015. Causal Interactions between FDI, and Economic Growth: Evidence from Dynamic Panel Co-integration. *Procedia Economics and Finance*, *23*, pp.276–290. https://doi.org/10.1016/S2212-5671(15)00541-9

Abor, J. and Harvey, S.K., 2008. Foreign direct investment and employment: host country experience. *Macroeconomics and Finance in Emerging Market Economies*, *1*(2), pp.213–225. https://doi.org/10.1080/17520840802323224

Adams, R.H. and Page, J., 2005. Do international migration and remittances reduce poverty in developing countries? *World Development*, *33*(10), pp.1645–1669. https://doi.org/10.1016/J.WORLDDEV.2005.05.004

Al-Sadig, A., 2013. The effects of foreign direct investment on private domestic investment: evidence from developing countries. *Empirical Economics*, *44*(3), pp.1267–1275. https://doi.org/10.1007/s00181-012-0569-1

Ali, H.S. *et al.*, 2018. Remittance and growth nexus: bootstrap panel granger-causality evidence from high remittance receiving countries. *International Journal of Economics and Business Research*, *15*(3), pp.312–324. https://doi.org/10.1504/ijebr.2018.10011592

Apostolopoulos, N., Dermatis, Z. and Liargovas, P., 2020. Foreign direct investment and growth causality in the EU countries and in the transition economies. In: Nikas C., eds. *Economic Growth in the European Union. Analyzing SME and Investment Policies.* Contributions to Economics. Springer, Cham. pp.113-124 https://doi.org/10.1007/978-3-030-48210-7_9

Arif, I., Khan, L. and Raza, S.A., 2018. External Resources and Economic Growth: An Empirical Analysis of South Asian Countries. *Zagreb International Review of Economics and Business*, *21*(2), pp.1–17. https://doi.org/10.2478/zireb-2018-0010

Atkinson, A.B, Piketty, T. and Saez, E., 2011. Top Incomes in the Long Run of History. *Journal of Economic Literature*, *49*(1), pp.3–71. https://doi.org/10.1257/jel.49.1.3

Atkinson, A.B., 2015. *Inequality : what can be done?* London: Harvard University Press.

Azizi, S., 2018. The impacts of workers' remittances on human capital and labor supply in developing countries. *Economic Modelling*, *75*, pp.377–396. https://doi.org/10.1016/J.ECONMOD.2018.07.011

Basnet, H.C. and Upadhyaya, K.P., 2014. Do remittances attract foreign direct investment? An empirical investigation. *Global Economy Journal*, 14(1), pp.1-9. https://doi.org/10.1515/gej-2013-0052

Baum, C.F., 2001. *XTTEST3: Stata module to compute Modified Wald statistic for groupwise heteroskedasticity*. [online] Available at: <https://econpapers.repec.org/RePEc:boc:bocode:s414801> [Accessed November 2020].

Bourguignon, F., Scott-Railton, T. and Princeton, O., 2015. *The Globalization of Inequality*. Princeton University Press. Available at: <https://iow.eui.eu/wp-content/uploads/sites/28/2018/05/Session-3-COMPLEMENTARY-1-Bourguignon2.pdf> [Accessed 9 March 2020]

Bunduchi, E., Vasile, V., Comes, C.-A. and Stefan, D., 2019. Macroeconomic determinants of remittances: evidence from Romania. *Applied Economics*, *51*(35), pp.3876–3889. https://doi.org/10.1080/00036846.2019.1584386

Chowdhury, M., 2016. Financial Development, Remittances and Economic Growth: Evidence Using a Dynamic Panel Estimation. *Margin: The Journal of Applied Economic Research*, *10*(1), pp.35–54. https://doi.org/10.1177/0973801015612666

Cisma, L.M., Curea-Pitorac, R.I. and Vădăsan, I., 2020. The impact of remittances on the receiving country: some evidence from Romania in European context. *Economic Research-Ekonomska Istraživanja*, *33*(1), pp.1073–1094. https://doi.org/10.1080/1331677X.2019.1629328

Combes, J.-L., Kinda, T., Ouedraogo, R. and Plane, P., 2019. Financial flows and economic growth in developing countries. *Economic Modelling,* 83, pp. 195-209. https://doi.org/10.1016/J.ECONMOD.2019.02.010

Comes, C.-A., Bunduchi, E., Vasile, V. and Stefan, D., 2018. The Impact of Foreign Direct Investments and Remittances on Economic Growth: A Case Study in Central and Eastern Europe. *Sustainability*, *10*(1), pp.238. https://doi.org/10.3390/su10010238

Das, A. and Sethi, N., 2020. Effect of foreign direct investment, remittances, and foreign aid on economic growth: Evidence from two emerging South Asian economies. *Journal of Public Affairs*, *20*(3), e2043. https://doi.org/10.1002/pa.2043

Demir, F. and Duan, Y., 2018. Bilateral FDI Flows, Productivity Growth, and Convergence: The North vs. The South. *World Development*, 101, pp.235-249. https://doi.org/10.1016/j.worlddev.2017.08.006

Dorn, F., Fuest, C. and Potrafke, N., 2017. *Globalisation and Income Inequality Revisited*. EC- European Economy, Discussion paper 056/ JULY https://doi.org/10.2765/5830

Driffield, N. and Jones, C., 2013. Impact of FDI, ODA and Migrant Remittances on Economic Growth in Developing Countries: A Systems Approach. *The European Journal of Development Research*, *25*(2), pp.173–196. https://doi.org/10.1057/ejdr.2013.1

Duarte, L. do R. V., Kedong, Y. and Xuemei, L., 2017. The Relationship between FDI, Economic Growth and Financial Development in Cabo Verde. *International Journal of Economics and Finance*, *9*(5), pp.132–142.

Eggoh, J., Bangake, C. and Semedo, G., 2019. Do remittances spur economic growth? Evidence from developing countries. *The Journal of International Trade & Economic Development*, pp.1–28. https://doi.org/10.1080/09638199.2019.1568522

Estrin, S., 2017. Foreign direct investment and employment in transition economies. *IZA World of Labor*, 2017:330. https://doi.org/10.15185/izawol.330

Garas, A., Lapatinas, A. and Poulios, K., 2016. The relation between migration and FDI in the OECD from a complex network perspective. *Advances in Complex Systems*, 19, No. 06n07, 1650009.

Garcia-Fuentes, P.A., Kennedy, P.L. and Ferreira, G.F.C., 2013. U.S. Foreign Direct Investment in Latin America and the Caribbean: A case of Remittances and Market Size. *2013 Annual Meeting, February 2-5, 2013, Orlando, Florida*.

Gherghina, S.C., Simionescu, L.N. and Hudea, O.S., 2019. Exploring Foreign Direct Investment–Economic Growth Nexus—Empirical Evidence from Central and Eastern European Countries. *Sustainability*, *11*(19), 5421. https://doi.org/10.3390/su11195421

Giuliano, P. and Ruiz-Arranz, M., 2009. Remittances, financial development, and growth. *Journal of Development Economics*, *90*(1), pp.144–152. https://doi.org/10.1016/j.jdeveco.2008.10.005

Granger, C.W.J., 1969. Investigating Causal Relations by Econometric Models and Cross-spectral Methods. *Econometrica*, 37(3), pp.424-438. https://doi.org/10.2307/1912791

Harchaoui, T.M., 2019. Global volatility accounting and structural transformation. *Oxford Economic Papers,* gpz074. https://doi.org/10.1093/oep/gpz074

Herzer, D., Klasen, S. and Nowak-Lehmann D.F., 2008. In search of FDI-led growth in developing countries: The way forward. *Economic Modelling*, *25*(5), pp.793–810. https://doi.org/10.1016/j.econmod.2007.11.005

Huber, P. and Oberdabernig, D. A., 2016. Decomposing Welfare Wedges: An Analysis of Welfare Dependence of Immigrants and Natives in Europe. *Kyklos*, *69*(1), pp.82–107. https://doi.org/10.1111/kykl.12104

Hurlin, C. and Dumitrescu, E., 2012. Testing for Granger Non-causality in Heterogeneous Panels. *HAL Id : halshs-00224434*, version 2.

Iamsiraroj, S., 2016. The foreign direct investment-economic growth nexus. *International Review of Economics and Finance*, *42*, pp.116–133. https://doi.org/10.1016/j.iref.2015.10.044

IMF., 2009. *International Transactions in Remittances Guide for Compilers and Users*. [online] Available at: <https://www.imf.org/external/np/sta/bop/2008/rcg/pdf/ch1.pdf> [Accessed 9 February 2020]

Inoue, T., 2018. Financial development, remittances, and poverty reduction: Empirical evidence from a macroeconomic viewpoint. *Journal of Economics and Business*, *96*, pp.59–68. https://doi.org/10.1016/J.JECONBUS.2017.12.001

Khurshid, A. *et al.*, 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. *Romanian Journal of Economic Forecasting*, *23*(1), pp.37–56.

Lartey, E.K.K., 2013. Remittances, investment and growth in sub-Saharan Africa. *The Journal of International Trade & Economic Development*, *22*(7), pp.1038–1058. https://doi.org/10.1080/09638199.2011.632692

Le, T., 2009. Trade, remittances, institutions, and economic growth. *International Economic Journal*, *23*(3), pp.391–408. https://doi.org/10.1080/10168730903119443

Levin, A., Lin, C.-F. and James Chu, C.-S., 2002. Unit root tests in panel data: asymptotic and finite-sample properties. *Journal of Econometrics*, *108*(1), pp.1–24. https://doi.org/10.1016/S0304-4076(01)00098-7

Lopez, L. and Weber, S., 2017. Testing for Granger Causality in Panel Data. *The Stata Journal: Promoting Communications on Statistics and Stata*, *17*(4), pp.972–984. https://doi.org/10.1177/1536867X1801700412

Mehedintu, A., Soava, G. and Sterpu, M., 2020. Remittances, migration and gross domestic product from romania's perspective. *Sustainability*, 12(1), 212. https://doi.org/10.3390/su12010212

Moran, T., Görg, H., Serič, A. and Krieger-Boden, C., 2018. Attracting FDI in middle-skilled supply chains. *Economics: The Open-Access, Open-Assessment E-Journal*. [online] Available at: <https://doi.org/10.5018/economics-ejournal.ja.2018-26> [Accessed.5 March 2020.

OECD., 2020a. Non-ODA flows to developing countries: Remittances . Available at: <https://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/beyond-oda-remittances.htm> [Accessed November 30, 2020]

OECD., 2020b. OECD investment policy responses to COVID-19 - OECD. Available at: <https://read.oecd-ilibrary.org/view/?ref=129_129922-gkr56na1v7&title=OECD-Investment-Policy-Responses-to-COVID-19> [Accessed November 30, 2020]

Piketty, T., 2014. *Capital in the Twenty-First Century*. Harvard University Press. Available at: <https://dowbor.org/blog/wp-content/uploads/2014/06/14Thomas-Piketty.pdf> [Accessed November 30, 2020]

Raza, S.A., 2015. Foreign direct investment, workers' remittances and private saving in Pakistan: an ARDL bound testing approach. *Journal of Business Economics and Management*, *16*(6), pp.1216–1234.

Shafqat, M.M., Xia, E., Bari, M.W. and Baloch, M.A., 2017. Linkage between remittances and FDI: Evidence from low-income countries. *2017 4th International Conference on Industrial Economics System and Industrial Security Engineering (IEIS)*, 1–5. https://doi.org/10.1109/IEIS.2017.8078630

Siddique, A., Selvanathan, E.A. and Selvanathan, S., 2012. Remittances and Economic Growth: Empirical Evidence from Bangladesh, India and Sri Lanka. *Journal of Development Studies*, *48*(8), pp.1045–1062. https://doi.org/10.1080/00220388.2012.663904

Soumaré, I. and Tchana Tchana, F., 2015. Causality between FDI and Financial Market Development: Evidence from Emerging Markets. *The World Bank Economic Review*, *29*(suppl 1), S205–S216. https://doi.org/10.1093/wber/lhv015

Vaaler, P.M., 2018. *Immigrant Remittances and the Venture Investment Environment of Developing Countries*. In: Reuber A., eds. 2018. International Entrepreneurship. JIBS Special Collections. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-319-74228-1_9

Vasile, V. *et al*., 2020. *FDI and remittances: a Dumitrescu-Hurlin Panel Granger causality approach*. https://doi.org/10.17605/OSF.IO/2ZU9J

Wan, X., 2010. A Literature Review on the Relationship between Foreign Direct Investment and Economic Growth. *International Business Research*, *3*(1), pp.52-56

World Bank., 2010. *Outlook for Remittance Flows 2010-2011*.

World Bank., 2019a. *LEVERAGING ECONOMIC MIGRATION FOR DEVELOPMENT A Brieeng for the World Bank Board*.

World Bank., 2019b. *MIGRATION AND REMITTANCES Recent Developments and Outlook*. Retrieved from www.KNOMAD.org.

World Bank., 2020a. Foreign direct investment, net inflows (% of GDP) | Data. Available at: <https://data.worldbank.org/indicator/BX.KLT.DINV.WD.GD.ZS> [Accessed November 14, 2020]

World Bank., 2020b. GDP per capita (current US$) | Data. Available at: <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD> [Accessed November 14, 2020]

World Bank., 2020c. Personal remittances, received (% of GDP) | Data. Available at: <https://data.worldbank.org/indicator/BX.TRF.PWKR.DT.GD.ZS> [Accessed November 14, 2020]

Xu, M. and Hale, G., 2016. FDI effects on the labor market of host countries. *Federal Reserve Bank of San Francisco.* Working Paper 2016-25. Available at: <http://www.frbsf.org/economic-research/publications/working-papers/wp2016-25.pdf> [Accessed November 14, 2029]

Zaman, G. and Vasile, V., 2012. Macroeconomic impact of FDI in Romania. *Procedia Economics and Finance. Emerging Markets Queries in Finance and Business*, *3*, pp.3–11. https://doi.org/10.1016/S2212-5671(12)00113-X

Zhunio, M.C., Vishwasrao, S. and Chiang, E.P., 2012. The influence of remittances on education and health outcomes: a cross country study. *Applied Economics*, *44*(35), pp.4605–4616. https://doi.org/10.1080/00036846.2011.593499