Labour Migration and Tourism Flows: the Case of the EU

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Abstract
During the last decades, the deepening of globalisation has led to an intensification of two forms of international human mobility – tourism and migration. Considering the high proportion of migrant workers in the tourism industry, migration's possible negative or positive impact on international tourism comes to the forefront. The current article aims to explore the influence of migration, including labour migration, on tourism flows and the impact of tourism flows and migration on the labour market both in donor and host countries. The statistical basis of the analysis was the annual panel data on labour market and tourism indicators for selected EU member states. We have built three panel data econometric models on 17 member states of the European Union on the data from 2005 to 2019. The results suggest that migration and labour migration are significant factors for international tourism and the labour market, with immigration positively impacting both the tourism industry and labour market. At the same time, emigration has a negative effect mainly due to the possible "brain drain" in the donor countries. On the other hand, international tourism has a strong positive influence on the labour market, providing strong evidence for the phenomena of migration-led tourism in the selected member-states of the European Union. Our primary assumption in this regard is that immigration and labour migration contribute to the increase in international tourism arrivals through VFR tourism and cultural enrichment of the destination countries. The current study contributes to the modern research on the interconnections between labour market and tourism. Policy makers can use the results to improve labour market and tourism conditions.

1. Introduction

The deepening of globalisation during the last decades has led to an intensification of two forms of international human mobility – tourism and migration. These two notions have many interconnections while also being highly different. However, it is sometimes difficult to draw strict boundaries between them. Many studies explore the relationship between tourism and migration flows (Strielkowski et al., 2015; Fasani et al., 2020; Paniagua & Santana Gallego, 2020). The main focus of the academics is two

phenomena known as "Tourism-led Migration" (Okani & Naoi, 2020; Provenzano, 2020; Toker & Kozak, 2020) and "Migration-led tourism" (Paniagua & Santana Gallego, 2020; Okafor et al., 2021; Walmsley et al., 2022).

Before the Covid-19 pandemic, tourism industry value-added amounted to 9.2 trillion US dollars or 10.4% of global GDP. The pandemic caused the closure of many facilities in the tourism industry, which are not back to full operation up to present (Popek Biškupec et al., 2022; Esquivias et al., 2021). In terms of the labour market, we should highlight that the tourism industry maintained 334 million jobs accounting for 10.6% of all jobs in 2019 (WTTC, 2021). Moreover, according to ILO (2017) estimations, tourism is considered a crucial employment source for such vulnerable groups as youth, women and migrant workers, including full-time, part-time and seasonal employment. Being one of the most resilient industries during previous economic crises, the travel and tourism sector suffered the most due to the recent pandemic (Turisova et al. 2021). According to WTTC estimations, the total contribution to the global GDP dropped to 5.5%, and employment dropped to 272 million in 2020.

On the other hand, the tourism and hospitality sectors employ many migrant workers. Due to the restrictions on tourism and travel, migrant workers became the most vulnerable group among employees as they are being laid off, and their salaries have been reduced in the face of high inflation rates due to economic crisis globally. In European Union, the tourism and hospitality sector employed more than 13 million people, of which 16% are foreign citizens (7% being from non-EU countries) compared to 9% in the non-financial sector as of 2017 (Eurostat, 2018). According to Eurostat, Cyprus, Ireland, and Austria have more than 25% foreign citizens working in the tourism and accommodation sector, and Luxembourg - 61%. Moreover, migrant workers are more likely to work illicitly becoming even more vulnerable to the consequences of the pandemic (Remeikiene & Gaspareniene, 2021).

Considering the high proportion of migrant workers in the tourism industry, the downturn in the tourism and accommodation sector hit hard the migrant workers, especially those who are low-skilled workers. The consequences also reach their home countries in the form of a decrease in remittances. In these terms, the current study explores the influence of labour migration on tourism flows, and the impact of tourism flows on the labour market both in donor and host countries.

This article has the following structure: the second part – Literature review, explores the existing academic research on the interlinkages between migration and tourism, the third part – Methods, describes the methodology, methods and empirical basis of the study, the fourth and fifth parts – results and discussion, explain the econometric model results and their comparison to similar research results, in the end, we highlight the main conclusions of the research on the mutual influences between international migration and tourism.

2. Literature review

Migration and tourism are two forms of human mobility also being the most significant consequences of globalisation processes. International migration has been at the forefront of academic discussions during the last decades (Fasani et al., 2020; Gavurová et al., 2021a, 2021b; Sahoo & Pradhan, 2021; Shomron & Tirosh, 2021; Thym, 2021). United Nations (1998) defines migration as individuals who change their country of residence for more than one year. On the other hand, temporary travel for various reasons, such as medical treatment, business, and holidays, is not considered migration and is classified as tourism. Labour migration is the form of migration where people change their country of residence to find work abroad. According to several studies, migrant workers play a crucial role in the tourism industry (Hudson et al., 2011; Filimonau & Mika, 2019; Abdin & Kumar, 2020; Belas et al., 2021; Čaplánová et al., 2021; Dvorský et al., 2021; Privara & Rievajová, 2021; Vorobeva & Dana, 2021).

There have been many studies done to identify the determinants of migration (Privara, 2019; Cimpoeru, 2020; Grumstrup et al., 2021; Jorgensen et al., 2021; Kabir, 2021) and the determinants of tourism (Tavares & Leitão, 2016; Corne & Peypoch, 2020; Gavurová et al., 2021c), mainly indicating the

social, demographic and economic factors, as well as the level of economic development and cultural heritage (Belas et al., 2020; Bitschnau et al., 2021; Caarls et al., 2021). Concerning the economic determinants influencing tourism flows, many researchers have explored such essential aspects, as transportation length and costs (Wie & Choy, 1993; Bai et al., 2014; Napoli, 2017; Fedorko et al. 2018), FDI and exchange rate fluctuations (Tang et al., 2016; Munir & Iftikhar, 2021; Yalcin et al., 2021), economic crisis (Guduras, 2014; Perles-Ribes et al., 2014; Valeeva et al., 2020), pandemics (Dwyer et al., 2006; Liu et al., 2021; Škarea et al., 2021), environment (Vasanicova et al., 2021; Castanho et al., 2021; Gavurova et al. 2019), geographical factors (Gosar & Cigale, 2015; Fotiadis et al., 2019; Taunay et al., 2020) and cultural factors (Joshi et al., 2017; Liu et al., 2020). On the other hand, less literature focuses on the migration-tourism nexus, exploring the bilateral influence of these forms of human mobility and their impact on the labour market.

In terms of migrant labour contribution to tourism, some studies highlight that the tourism industry is highly dependent on the presence of migrant workers, including permanent, temporary and seasonal employment, due to the need for cheap labour (Čaplánová & Willett, 2019; Gavurová et al., 2020; Činčalová et al., 2021; Walmsley et al., 2022) and in some cases language skills (Iranzo & Peri, 2009; Paniagua & Santana Gallego, 2020; Stefancik et al., 2021). Moreover, academics argue that migration potentially results in a significant contribution to the labour market (Çelik & Arslan, 2018; Přívara, 2021; Durana et al., 2021; Mura, 2021), economic development (Serban et al., 2020; Navickas et al., 2021), cultural enrichment (Liu et al., 2020), tourism, including the following forms – visiting friends and relatives (VFR) and *"Expat"* (Dwyer et al., 2014; Okafor et al., 2021; Antosko et al. 2015; Petruf et al. 2015). Graph 1 presents a summary of transactions between home and destination countries regarding international labour migration and tourism and the main consequences for the countries.

Concerning the interlinkages between migration and tourism, two famous phenomena are tourism-led migration (TLM) and migration-led tourism (MLT). When speaking about MLT, according to the literature, the emigration of working-age people can have both positive and negative influence on the tourism industry in the donor country, such as (see Dwyer et al., 2014; Çelik & Arslan, 2018; Jorge & Garcia-Mora, 2020; Walmsley et al., 2022, Melnikova et al. 2016 etc.):

- An increase in inbound tourism flows due to "expat" tourism and a better spread of knowledge about the country worldwide.
- Capital inflow through remittances leads to an improvement of tourism infrastructure.
- Foreign direct investments done mainly by the diaspora.
- The inflow of tourists with higher purchasing power.
- "Brain drain" due to the emigration of high-skilled workers.
- Enhance the demand for goods from their origin countries.
- Economic links between home countries and destination countries are strengthened due to the growing diaspora.

On the other hand, the destination countries also experience positive and negative consequences from labour migration, such as:

- An increase in inbound tourism flows due to cultural enrichment and VFR tourism.
- Cultural enrichment leading to the development of new travel services to enhance tourist attractions.
- Economic contribution through a higher inflow of tourists increased consumer spending and lower unemployment.
- Possible wage reduction due to the inflow of cheap labour force.
- People may be attracted by the existence of a diaspora of their nationals in the destination country.

TLM is about socio-economic reasons underlying tourism leading to migration. The literature on this topic indicates the following primary forms of this connection (Gossling & Schulz, 2005; Orviska et al., 2014; Okani & Naoi, 2020; Provenzano, 2020; Toker & Kozak, 2020):

- A high inflow of tourists during the hot season can cause an additional labour demand leading to the attraction of seasonal and temporary migrant workers to the host country.
- After retirement, previous tourists may change their country of residence.
- High capital inflow from inbound tourism can lead to more investments in the country, causing further improvement of welfare and attracting immigration.

Graph 1. **Main transactions and consequences due to tourism and migration**
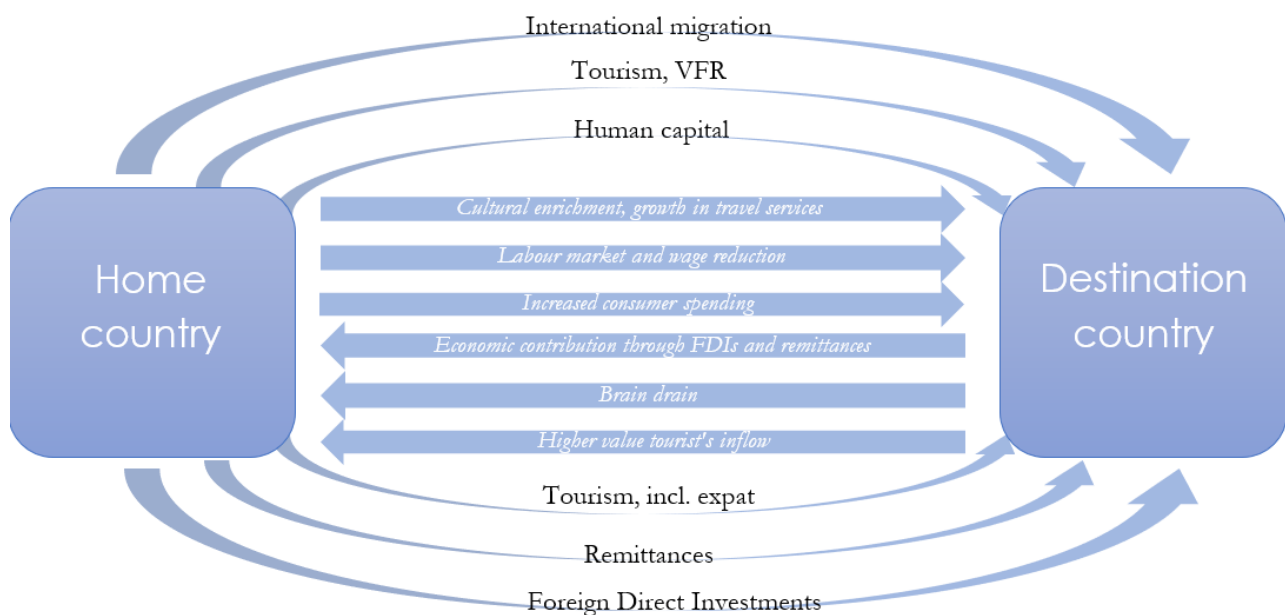
Source: Compiled by the author based on the literature review.

Considering the geographical perspective, there have been done many studies of migration-led tourism and tourism-led migration for the following countries and regions mainly revealing positive mutual influence between migration and tourism:

- Australia and New Zealand (Backer, 2012; Law et al., 2013; Dwyer et al., 2014),
- North America (Prescott et al., 2005; Leary et al., 2015),
- Great Britain (Gheasi et al. 2011),
- Italy (Massidda et al., 2015).

However, the literature lacks a comprehensive analysis of the interconnection of tourism and migration (including labour migration) in the member-states of the European Union (EU). To the best of our knowledge, few articles analyse the influences between migration and tourism on panel data from multiple countries using various econometric models. Balli et al. (2016) have examined the impact of immigration and trade on tourism on the bilateral data from 34 OECD countries. They concluded about the positive advertising effect of countries of origin by the immigrants in OECD, except immigrants from African countries. Another study (Provenzano, 2020) done on the tourism and migration statistics in EU28 countries used gravity models to explore country-to-country bilateral effects. The author argues that there is a direct influence between migration and tourism within the EU.

The current study aims to fill the literature gap mentioned above by exploring the influence of migration on tourism and the impact of both tourism and labour migration on the labour market.

3. Methods

The goal of the current article is to explore the influence of migration, including labour migration, on tourism flows and the impact of tourism flows and migration on the labour market both in donor and host countries. The statistical basis of the analysis was the annual panel data on the following indicators: international tourism (number of arrivals), immigration, emigration, number of foreign workers, remittances and unemployment. The study was done for selected EU member states with all the data available for all the years from 2004 to 2019 to build a balanced panel. Hence, based on the data available for all years and indicators, the following 17 countries were selected: Austria, Belgium, Czechia, Denmark, Finland, Germany, Hungary, Ireland, Italy, Latvia, Luxembourg, Netherlands, Poland, Portugal, Slovenia, Spain and Sweden. To build and estimate the econometric models testing the impact of selected independent variables on international tourism (number of arrivals) and unemployment, the econometric package EViews 10 was applied. The panel data approach was chosen to test the primary hypothesis as many studies indicate that this approach is appropriate for testing economic dependencies regarding tourism and migration flows from a regional perspective (see Franc et al., 2019; Neuts, 2019; Istudor et al., 2020; Eyuboglu, S. & Eyuboglu, K., 2020, Simionescu, 2021).

The following dependant indicators were chosen correspondingly to explore the impact on the tourism industry and labour market: international tourism, number of arrivals (TR) and unemployment (UNEMP). The data for immigration (IM), emigration (EM), unemployment and number of foreign workers (FW) was collected from the Eurostat database, and the data for international tourism was collected from the World bank database on World Development Indicators for the period from 2004 to 2019. To ensure the stationarity of the data, primary statistical processing methods were applied, including logging on a natural basis and calculation of first differences against the previous period as a result of which we have dropped the year 2004. The data was adjusted considering the presence of outliers and was checked against seasonality, stationarity and heteroscedasticity. Table 1 presents the descriptive statistics for all the indicators used for estimation.

Table 1. **Descriptive statistics of the variables**

	TR	**IM**	**EM**	**FW**	**REM**	**UNEMP**
Mean	0.0406	0.0493	0.0509	0.0704	0.0522	-0.2565
Median	0.0388	0.0383	0.0263	0.0478	0.0458	-0.36
Maximum	0.1443	2.5164	1.0293	2.5082	1.2495	2.11
Minimum	-0.0495	-0.6781	-0.9458	-0.2885	-0.7849	-3.24
Std. Dev.	0.0409	0.2563	0.2554	0.198	0.1612	1.0531
Skewness	0.251	3.5912	2.3591	7.7396	1.038	-0.0023
Kurtosis	2.8332	36.8823	19.1716	92.6346	17.4021	2.8307
Jarque-Bera	2.9722	12745.69	3015.18	87910.85	2249.65	0.3047
Probability	0.2262	0.00	0.00	0.00	0.00	0.8587

Observations	255	255	255	255	255	255

Source: Own calculation based on Eurostat and World Development Indicators data.

To test the primary goal of the study, we have developed two research hypotheses as follows:
- Reduction in tourism flows can lead to an increase in unemployment.
- Migration flows contribute to the development of the tourism industry in both home and destination countries.

To avoid multicollinearity because of the high level of correlation between immigration and the number of foreign workers, we have built two models for international tourism arrivals. Thus, the following three models were constructed to test the research hypotheses:

$$TR_{it} = C + \alpha IM_{it} + \beta EM_{it} + \gamma REM_{it} + u_i + \varepsilon_{it} \, , \tag{1}$$

$$TR_{it} = C + \alpha FW_{it} + u_i + \varepsilon_{it} \, , \tag{2}$$

$$Unemp_{it} = C + \alpha IM_{it} + \beta EM_{it} + \gamma TR_{it} + \sigma REM_{it} + u_i + \varepsilon_{it} \, . \tag{3}$$

Where i = 1, …, N represents the EU member states included in the model; t = 1, …, T represents the periods used for the analysis; IM_{it} represents a vector of time-varying explanatory variables for immigration flows across 17 EU member states; EM_{it} represents a vector of time-varying explanatory variables for emigration flows across 17 EU member states; REM_{it} represents a vector of time-varying explanatory variables for remittances inflow across 17 EU member states; FW_{it} represents a vector of time-varying explanatory variables for the number of foreign workers across 17 EU member states; in the model (3) TR_{it} represents a vector of time-varying explanatory variables for international tourism arrivals across 17 EU member states; $Unemp_{it}$ is the dependent variable of the model (3); TR_{it} is the dependent variable in models (1) and (2); ε_{it} is the error term. Considering all the annual data was present in the dataset, the panels in all three models are balanced with 255 total observations.

There are three possible sub-models for estimating the coefficients of all three panel data models presented above depending on the nature of the individual residual u_i: Pooled-OLS, Fixed effects and Random effects. The following section presents the results of the estimation using ordinary coefficients covariance and Swamy-Arora random-effects methods.

4. Results

Table 2 presents the estimation results output of the model (1), including the estimation results applying Pooled OLS, Fixed effects and Random effects methods presented from left to right correspondingly. In the case of all three methods, the probability values for immigration and emigration are less than 0.05; hence we can assume that they are significant at a 5% significance level, considering that we have enough evidence to reject the null hypothesis of these coefficients being equal to zero. On the other hand, following the same logic, remittances are not a significant factor throughout the three estimation methods applied.

The adjusted R-square for model (1) is equal to 0.0579. Hence, we can assume that the chosen variables explain the change in international tourism arrivals by 5.79%. However, our primary hypothesis was to test the significance of the regressors; hence the low level of R-square is not crucial in this case. In the current research framework, the significance of F-statistic is more critical. All three sub-models for estimating equation (1) have a probability value of F-statistic lower than 0.05. The latter provides enough evidence to accept the alternative hypothesis of the model (1) fitting the data better than would a model without REM, EM and IM as regressors.

Table 2. **Estimation results for model (1)**

Regressor	Pooled OLS		Fixed effects (FEM)		Random effects (REM)	
	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
IM	0.0284	0.0059	0.0245	0.0155	0.0263	0.0088
EM	-0.033	0.0013	-0.0324	0.0016	-0.0329	0.0012
REM	0.010	0.5124	0.0056	0.7135	0.0078	0.6106
C	0.040	0.0000	0.0407	0.0000	0.0405	0.0000
R-square	0.0579		0.1802		0.0556	
R-square adj.	0.0467		0.1139		0.0443	
F-statistic	5.144		2.7189		4.9269	
Prob (F-statistic)	0.0018		0.0002		0.0024	

Source: Own calculation based on Eurostat and World Development Indicators data.

We have applied two tests to check which of the three sub-models presented in Table 2 fits better for estimation the model (1): Lagrange multiplier (LM) test for panel data and Correlated Random Effects - Hausman Test. The first test aims to identify whether a pooled OLS or Random effects method regarding period or cross-section is more appropriate for estimating the model (1). Table 3 presents the estimation results of the Lagrange multiplier (LM) test for panel data. The low level of the p-value for Breusch-Pagan, Honda and King-Wu tests provides sufficient evidence to reject the null hypothesis of the panel data having no random effects at a 5% significance level. Hence, we can check the model appropriateness against random and fixed effects, considering the pooled OLS is not appropriate for the model (1).

Table 3. **Lagrange multiplier (LM) test for model (1)**

Null (no rand. effect) Alternative	Cross-section One-sided	Period One-sided	Both
Breusch-Pagan	7.936392	25.23083	33.16722
	(0.0048)	(0.0000)	(0.0000)
Honda	2.817160	5.023030	5.543851
	(0.0024)	(0.0000)	(0.0000)
King-Wu	2.817160	5.023030	5.592789
	(0.0024)	(0.0000)	(0.0000)

Source: Own calculation based on Eurostat and World Development Indicators data.

Table 4 presents the results for Correlated Random Effects - Hausman Test. The latter tests whether the random effects or fixed effects model is more appropriate. The high level of probability value and the level of Chi-square statistic indicates that we don't have sufficient evidence of rejecting the presence of cross-section random effects in the model (1). As a result of applying the Lagrange multiplier

(LM) test for panel data and Correlated Random Effects - Hausman tests, we have chosen the cross-section random effects as the most appropriate model for estimating equation (1).

Table 4. **Hausman test for model (1)**

Null (rand. effect)	Chi-Sq. Statistic	Degrees of freedom	Prob.
Cross-section random	*2.765619*	*3*	*0.4292*

Source: Own calculation based on Eurostat and World Development Indicators data.

Table 5 presents the estimation results output of the model (2), including the estimation results applying Pooled OLS, Fixed effects and Random effects methods presented from left to right correspondingly. In the case of pooled OLS method, the probability value for FW is 0.0532, indicating that the regressor is not significant at a 5% significance level but is significant at a 10% significance level. In the case of fixed effects and random effects methods, the probability values for the number of foreign workers are less than 0.05; hence we can assume that they are significant at a 5% significance level, considering that we have enough evidence to reject the null hypothesis of these coefficients being equal to zero.

The adjusted R-square for model (2) is equal to 0.0108. Hence, we can assume that the chosen variable explains the change in international tourism arrivals by 1.08%. However, as in the case of the model (1), our primary hypothesis was to test the significance of the regressor; hence, the low level of R-square is not crucial in this case either. In the framework of model (2), the significance of the F-statistic is more critical. FEM and REM sub-models have a probability value of F-statistic lower than 0.05, providing enough evidence to accept the alternative hypothesis of the model (2) fitting the data better than would a model without FW as a regressor.

Table 5. **Estimation results for model (2)**

Regressor	Pooled OLS		Fixed effects (FEM)		Random effects (REM)	
	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
FW	*0.0250*	*0.0532*	*0.0283*	*0.0235*	*0.0249*	*0.0432*
C	*0.0388*	*0.0000*	*0.0385*	*0.0000*	*0.0388*	*0.0000*
R-square	*0.0147*		*0.0202*		*0.2119*	
R-square adj.	*0.0108*		*0.0163*		*0.1625*	
F-statistic	*3.7723*		*5.2088*		*4.2855*	
Prob (F-statistic)	*0.0532*		*0.0233*		*0.00*	

Source: Own calculation based on Eurostat and World Development Indicators data.

Following the logic applied in model (1), we have used the Lagrange multiplier (LM) test for panel data and Correlated Random Effects - Hausman Test to check which of the three sub-models presented in Table 5 fits better for estimating the model (2). Table 6 shows the estimation results of the Lagrange multiplier (LM) test for panel data. The low level of the p-value for Breusch-Pagan, Honda and King-Wu tests provides sufficient evidence to reject the null hypothesis of the panel data having no random

effects at a 5% significance level. Hence, we can proceed to checking the model appropriateness against random and fixed effects considering the pooled OLS is not appropriate for model (2), as was also evident from the F-statistic of pooled OLS model.

Table 6. **Lagrange multiplier (LM) test for Tourism model 2**

Null (no rand. effect) Alternative	Cross-section One-sided	Period One-sided	Both
Breusch-Pagan	*7.191600*	*39.22073*	*46.41233*
	(0.0073)	*(0.0000)*	*(0.0000)*
Honda	*2.681716*	*6.262645*	*6.324618*
	(0.0037)	*(0.0000)*	*(0.0000)*
King-Wu	*2.681716*	*6.262645*	*6.405550*
	(0.0037)	*(0.0000)*	*(0.0000)*

Source: Own calculation based on Eurostat and World Development Indicators data.

Table 7 presents the results for the Correlated Random Effects - Hausman test in the case of the model (2). The low level of probability value and the level of Chi-square statistic for cross-section indicates that we have sufficient evidence to reject the null hypothesis, the sufficiently high level of p-value in the case of period random effects provides enough evidence to accept the null hypothesis of the presence of period random effects in the model (2). As a result of the application of the Lagrange multiplier (LM) test for panel data and Correlated Random Effects - Hausman Tests, we have chosen the period random effects as the most appropriate model for estimating equation (2).

Table 7. **Hausman test for Tourism model 2**

Null (rand. effect)	Chi-Sq. Statistic	Degrees of freedom	Prob.
Cross-section random	*2.966179*	*1*	*0.0850*
Period random	*0.311041*	*1*	*0.5770*

Source: Own calculation based on Eurostat and World Development Indicators data.

Table 8 presents the estimation results output of the model (3), including the estimation results applying Pooled OLS, Fixed effects and Random effects methods presented from left to right correspondingly. Across all three sub-models, the p-value for remittances is higher than 0.05, providing enough evidence to accept the null hypothesis of the coefficient of the regressor equalling to zero. On the other hand, the p-values for immigration and emigration in the case of all three methods provide sufficient evidence to reject the null hypothesis and consider the regressor as significant for unemployment at a 5% significance level. And finally, the international tourism flows can be regarded as significant in the case of only pooled OLS and Random effects models.

The adjusted R-square for model (3) is equal to 0.1899. Hence, we can assume that the chosen variable explains the change in international tourism arrivals by 18.99%. However, as in the case of models (1) and (2), our primary hypothesis was to test the significance of the regressor; hence the low level of R-square is not crucial in this case either. In model (3) framework, the significance of F-statistic is more critical. All three sub-models have a probability value of F-statistic lower than 0.05, providing

enough evidence to accept the alternative hypothesis of the model (3) fitting the data better than would a model without TR, REM, IM and EM regressors.

Table 8. **Estimation results for model (3)**

Regressor	Pooled OLS		Fixed effects (FEM)		Random effects (REM)	
	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
TR	-4.8291	0.0014	-1.9937	0.1530	-2.6941	0.0490
REM	-0.2992	0.4220	0.1672	0.6442	0.0491	0.8886
IM	-1.3946	0.0000	-1.0680	0.0000	-1.1441	0.0000
EM	1.0512	0.0000	0.8923	0.0001	0.9310	0.0000
C	-0.0296	0.7374	-0.1770	0.0251	-0.1407	0.2616
R-square	0.2027		0.4592		0.1479	
R-square adj.	0.1899		0.418		0.13422	
F-statistic	15.8909		11.1349		10.8446	
Prob (F-statistic)	0.00		0.00		0.00	

Source: Own calculation based on Eurostat and World Development Indicators data.

Following the logic applied in the models (1) and (2), we have used the Lagrange multiplier (LM) test for panel data and Correlated Random Effects - Hausman Test to check which of the three sub-models presented in Table 8 fits better for estimating the model (3). Table 9 shows the estimation results of the Lagrange multiplier (LM) test for panel data. The high level of the p-value for Breusch-Pagan, Honda and King-Wu tests indicate that the pooled OLS method is more appropriate for model (3). Hence, there is no need to proceed to applying the Correlated Random Effects - Hausman Test. As a result of using the Lagrange multiplier (LM) test for panel data, we have chosen the pooled OLS as the most appropriate model for estimating equation (3).

Table 9. **Lagrange multiplier (LM) test for model (3)**

Null (no rand. effect) Alternative	Cross-section One-sided	Period One-sided	Both
Breusch-Pagan	0.000916	125.8368	125.8377
	(0.9759)	(0.0000)	(0.0000)
Honda	-0.030270	11.21770	7.910707
	(0.5121)	(0.0000)	(0.0000)
King-Wu	-0.030270	11.21770	8.171571
	(0.5121)	(0.0000)	(0.0000)

Source: Own calculation based on Eurostat and World Development Indicators data.

Equations (4), (5) and (6) present the estimated cross-section random-effects model for model (1), period random-effects model estimation for model (2) and pooled OLS model estimation for model (3).

$$TR_{it} = 0.0405 + 0.0263IM_{it} - 0.0329EM_{it} + 0.0078REM_{it}, \tag{1}$$

$$TR_{it} = 0.0385 + 0.0283FW_{it} \,, \qquad\qquad (2)$$

$$Unemp_{it} = -0.0296 - 1.3946IM_{it} + 1.0512EM_{it} - 4.8291TR_{it} - 0.2992REM_{it} \,. \qquad (3)$$

The estimation results of model (1) and model (2) show the following consequences of migration processes on international tourism arrivals:

- The coefficient of immigration has a positive sign, indicating that a 1% increase in immigration will lead to a 0.0405% increase in international tourism arrivals, ceteris paribus. This result is in line with our research hypothesis about immigration having a positive effect on the development of the tourism industry in the destination country.

- The sign of the coefficient of emigration is negative, meaning that a 1% increase in emigration leads to a reduction of international tourism arrivals by 0.0329%. The current result contradicts our primary hypothesis of emigration having a positive influence on the development of the tourism industry in the home country.

- According to our results, remittances are not significant for the tourism industry. It can be because most of the received remittances are usually spent for consumer consumption purposes in home countries.

- The coefficient of the number of foreign workers has a positive sign, indicating that a 1% increase in labour migration leads to a 0.0283% increase in international tourism arrivals. It is in line with our assumption that immigration positively influences the host country's tourism industry.

The estimation results of model (3) show the following consequences of tourism and migration processes on the labour market:

- ❖ The coefficient of immigration has a negative sign, indicating that a 1% increase in immigration will lead to a 1.3946% decrease in unemployment. Hence, immigration has a positive influence on the labour market.

- ❖ The sign of the coefficient of emigration is positive, meaning that a 1% increase in emigration leads to a 1.0512% increase in unemployment, having a negative effect on the labour market.

- ❖ The coefficient of the international tourist arrivals has a negative sign, indicating that a 1% increase in immigration will lead to a 4.8291% decrease in unemployment, having a significant positive impact on the labour market. This result is in line with our first hypothesis about the reduction of tourism flows negatively impacting unemployment.

- ❖ According to our results, remittances are not significant for the labour market either.

To sum up, the results show that our primary assumptions of human mobility in the form of tourism and migration have a positive impact on the destination country's labour market is confirmed. At the same time, we can reject the hypothesis of a positive effect on the country of origin. On the other hand, we can also see evidence of migration-led tourism in the European Union member-states, as shown by models (1) and (2).

5. Discussion

The current study results are in line with several studies done on the topic. According to our results, there is s strong evidence of immigration, and the presence of foreign workers in the labour market leading to an increase in the international tourism flows in the European Union. It can be conditioned firstly by visiting friends and relatives of migrants to the destination country. These conclusions are supported by the study done by Dragičević et al. (2019), who studied the data from 28 EU member-states using the method of comparative analysis. Their results indicated a strong positive correlation between immigration and tourism. However, as an indicator for tourism, they used "Nights

spent", while we used international tourism (number of arrivals). Concerning the labour migration having a positive impact on the tourism flows, our results are also in line with the results suggested by Paniagua & Santana-Gallego (2020).

In terms of immigration positively influencing tourism flows, our results are also in line with the research done by Okafor et al. (2021), who used gravity data to explore the relationship between migration and tourism for 166 donor and 30 host countries coming to a conclusion about a positive bilateral impact of migration rates on tourism. However, concerning emigration, our results about a negative effect on tourism flows are in contradiction with the latter. On the other hand, Provenzano (2020) supports our conclusions about a higher number of migrants leading to an increased number of tourist arrivals.

6. Conclusion

The current article aimed to explore the influence of migration, including labour migration, on tourism flows and the impact of tourism flows and migration on the labour market both in donor and host countries. The results show that migration and labour migration are significant factors for both international tourism and the labour market. While immigration has a positive effect in both cases, emigration has a negative effect. On the other hand, international tourism has a strong positive influence on the labour market.

Based on the results, we can argue that there is strong evidence of migration-led tourism in the selected member-states of the European Union. Our primary assumption in this regard is that immigration and labour migration contribute to the increase in international tourism arrivals through VFR tourism and cultural enrichment of the destination countries. On the other hand, we have found that due to the fact that remittances are mostly spent for current consumption purposes, they don't contribute to the development of the tourism industry in home countries and are not a significant factor neither for tourism nor labour market. Moreover, due to the possible "brain drain" in donor countries, emigration negatively impacts both the tourism industry and the labour market of the countries of origin.

The main limitation of the current study is that we have mainly analysed the data of countries with a high level of development with more increased immigration than emigration numbers. To better test the impact of emigration on the donor countries' tourism industry and labour market, further research should be done exploring especially the "expat" tourism in countries with significant negative net migration. Moreover, further analysis can be done to examine the determinants of migration-led tourism, such as linguistic factors, cultural enrichment and tourist satisfaction.

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