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Migrants' Role in Enhancing the Economic Development of Host Countries: Empirical Evidence from Europe

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Abstract: This research examines several modellers of immigration flows deployed within the European Union (EU), as well as their economic consequences upon the most targeted ten migrant receiving countries. The paper's aim is to identify specific ways in which migrants can contribute to host countries' sustainable development through positive spillover upon natives, labour market performance, and the overall economic activity. A set of methods and macro-econometric models, based on country fixed effects, spatial analysis, and structural equations modelling, was applied on a balanced panel formed by ten EU host economies. We analysed distinctly the labour and humanitarian (asylum seekers) migration flows, considered throughout two separate time periods, namely 2000–2015 and 2000–2019 (2019 being the deadline for Brexit negotiations). The results highlight that the immigration flows were mainly shaped by labour market outcomes, while the primary positive immigration impact was induced upon the gross domestic product (GDP) per capita and employment levels, both for natives and the foreign population.

Keywords: international migration; economic development; labour market; macro-econometric models; European Union

1. Introduction

International migration flows continue to increase year-by-year, and they are currently above the peak level registered in 2007 before the global economic crisis, with important effects for migrant sending and receiving economies. Immigration leads to significant changes in labour market performances, both for natives and the foreign-born populations, which largely vary from one country to another.

An attempt to understand the impact of international migration on European Union (EU) countries is, however, a challenging analytical issue since the effects of migration may vary across time and place. Equally importantly, robust and timely migrant data are not always readily available. Additionally, the existing migration data have certain imperfections, and this opens a debate on the conclusiveness of the migration studies. There is, nevertheless, a need for continuous assessments of the economic effects induced by migration into host countries to offer new evidence on particular ways in which migrants can positively contribute and enhance sustainable economic development.

Thus far, a number of studies have been undertaken to depict the adverse and beneficial consequences of international immigration, particularly on the population of a single receiving country. Some of these studies concluded that migrants increased the wages of national workers [1–3], while others claimed that immigration negatively affected wages in the receiving country [4], yet others concluded that increased immigration was negatively associated with employment rates in European countries [5]. Studies based on regional data further enhanced the current knowledge on immigration effects [6–8]. Rodriguez-Pose and Vilalta-Bufi [9] (p. 1) highlight that "factors such as the matching of educational supply and local labour needs, job satisfaction, and migration may have a stronger connection to economic performance than the traditional measures for the European regions". Different from previous studies, we processed the macro-econometric models on national data rather than on those collected by regions, for a better quantification of the effects induced by immigration upon natives and labour market outcomes (as suggested by some migration specialists) [10].

Hence, the present research aims to analyse the effects induced by *economic* (labour) and *humanitarian* (asylum seekers) *migration* upon labour markets and sustainable economic development of the most targeted EU-10 host countries according to Eurostat [11] and the United Nations High Commissioner for Refugees—The UN Refugee Agency (UNHCR) [12] data (namely Germany, France, the United Kingdom, Austria, Sweden, Italy, Spain, Belgium, Denmark, and Finland). We considered two distinct time periods for analysis, namely 2000–2015 and 2000–2019. These series were taken into account for two reasons: (i) first, to capture the long-run effects of immigration (2000–2015 period) to better assess the specific ways in which migrants contribute to sustainable economic development; (ii) second, to take into account the significant changes induced by the disintegration risk brought by the Brexit decision (2000–2019 timespan), 2019 being a milestone year for a possible outcome of the negotiations being held between the United Kingdom (UK) and EU-27.

In terms of the linkages between migration and sustainable economic development, this research examines the migration economic effects upon host countries through the underlying conditions that lead to employment creation, additional income, a poverty risk reduction, improved educational background, and living standards. Therefore, in our dataset, we included specific variables to capture these credentials in addition to the Gross Domestic Product (GDP) per capita and per person employed such as, for example, employment and unemployment rates (total, long term, foreign population); earnings and earnings' dispersion; at-risk-of-poverty rate; educational attainment and participation rates; and life expectancy. However, the focus is primarily on the GDP per capita since it is a widely used key indicator of living standards and economic welfare. Moreover, we focused on a longer period of time, to better capture a possible trade-off between rapid economic growth and long term growth.

The paper is structured as follows: After the introduction, Section 2 covers the issues relating to basic migration concepts and main economic consequences, along with the recent developments of international migration globally and in Europe, to orient the reader about the current situation. Section 3 details the research methodology, with a focus on the macro-econometric models developed and the data used in the empirical analysis. Section 4 includes the research results and their implications, and the final section comprises the concluding remarks.

2. The Literature Review

2.1. Migration: A Conceptual Framework

Migration is often defined in a broad sense through "a temporary or permanent change in residence" [13] (p. 49), and more specifically as the "movement of a person or a group of persons from a certain geographical unit towards another, crossing political and administrative frontiers, in their will to establish in a different place than the origin one" [14] (p. 6). Within this framework, there are no restrictions to the geographical distance covered by migrants or to the voluntary or undesired nature of the migration act. However, there is a clear distinction between internal and international migration by relating these concepts to national borders [15]. Thus, in this paper, the focus is on *international migration* which implies a cross-border movement of persons (labour force, refugees, asylum seekers). The complexity of the migration phenomenon is significantly increased under the impact of globalization. In our analysis, we take into account two aspects of different migrants' credentials: better labour conditions and living standards (known as *labour migration* or *economic migration*) and international protection (*humanitarian migration*). *Economic migration* (or labour migration) arises from various motives and is determined by new employment opportunities, improved working conditions, and wage differentials between migrant sending and receiving countries. *Humanitarian migration* includes "all recipients of protection—whether refugee status, temporary protection, subsidiary protection, etc." [16] (p. 4). In this paper, we refer to *refugees* in lines with the Geneva Convention on the Status of Refugees (1951): "a person who is outside his or her country of nationality or habitual residence; has a well-founded fear of being persecuted because of his or her race, religion, nationality, membership of a particular social group or political opinion; and is unable or unwilling to avail him—or herself of the protection of that country, or to return there, for fear of persecution" [12] (p. 5). An *asylum applicant* is an individual seeking international protection that has formally submitted a request for asylum on the grounds of a refugee status, subsidiary, or humanitarian temporary protection, but has not yet completed the asylum procedure [16] (p. 4). By comparison, from an economic perspective, a *migrant* leaves his country of origin due to various reasons, mainly in search of better employment opportunities, living standards at destination, family reunification, or study, and continues to benefit from the protection of his government even when abroad.

2.2. Migration: Consequences

As the conventional economic theory suggests, the impact of migration on receiving countries depends on a number of factors, including the skill mix of the immigrants and the characteristics of the host country.

In the matter of *welfare effects* induced by international migration for EU Member States, Aubry et al. [17] quantified these economic consequences focusing on the impact upon natives' living standard. Thus, the authors developed a model that combines the interactions between the labour market, fiscal aspects, and market size (such as the changes in the variety of goods available for consumers) under the impact of international migration, along with the trade relations between sending and receiving economies. Their results reveal that the immigration inflows had positive effects upon 69% of the native population for 34 Organization for Economic Cooperation and Development (OECD) members and on 83% of the natives from 22 wealthier OECD economies.

Immigration impacts upon a host country's labour market also refer to the effects induced by the variations in the labour supply of a certain qualification, associated with a consequent change in the labour market's equilibrium. The distributional effects of international migration are essential, one of its major repercussions consisting of a significant *change in the size and structure (skills) of the labour force* in both the sending and receiving economies. The effects are amplified when there is an associated change in skills distribution among the labour force [18]. For example, this is the case in a country confronted with large immigration inflows with an average qualification level higher (or lower) than that of native workers. Thus, the changes induced in the structure of the labour force have direct effects on inequality by changing the percentage of persons with high or low wages within the economy. Moreover, the immigration effects on natives' wages and employment perspectives have been largely debated in terms of trying to answer the question of whether the foreign immigrants' arrival in the host countries generates adverse consequences, including the emigration of natives from the affected areas [19]. Most studies highlighted a reduced impact in this regard [20–22]. Immigration flows affect the size and skills of the labour force when the educational background of the immigrants does not match those of the natives. This change in the educational level of the labour force leads to a disequilibrium between labour demand and supply of different types at the existing wage and output levels in the economy. Restoring the equilibrium would imply short-term variations in wage and employment levels according to the educational attainment and could (or not) induce additional long-term changes. The economic theory highlights that economic (labour) immigration does not generate significant negative effects upon wage levels and natives' employment degree, at least in the long-run, even when the educational attainment improves [22]. Glitz [8] points to a displacement effect of around 3.1 unemployed resident workers for every 10 immigrants that find a job, but with no detrimental effect on relative wages.

Different from others, Betz and Simpson [23] found that the overall effects of migration on natives' happiness are very low, while Longhi et al. [6] applied a meta-analytic technique to 165 estimates from 9 recent studies for various OECD countries and assessed whether immigration leads to job displacement among native workers. Ozgen et al. [7] report that immigration is a driving force for innovation when there is a distinct composition of immigrants coming from different backgrounds, rather than the size of the immigrant population in a certain region.

Analysing the social effects of immigrants into EU-15, Tsapenko [24] (p. 451) identified that "the inflow of migrants of another culture creates serious threats to national identity and the lifestyle established in Western societies", which will increase the concerns of host economy's population and drop their life contentment and deteriorate their emotional state. On the other hand, "the socio-economic situation of migrants is usually substantially worse than that of natives" [24] (p. 446), hence, accurate strategies (policies) for migrants' integration becomes necessary. An important element used for analysing the effects of international migration are the *active labour market policies (ALMPs)*, namely, policies with positive impact over the labour market performance and integration of the unemployed [25]. Another variable with different and controversial effects over the labour market outcomes are *the passive labour market policies (PLMPs)* [26]. The PLMPs refer mainly to (i) maintaining the income for the unemployment period through unemployment benefits, as well as (ii) the earlier retirement which facilitates total or partial retirement of elder workers with decreased possibilities in finding a job.

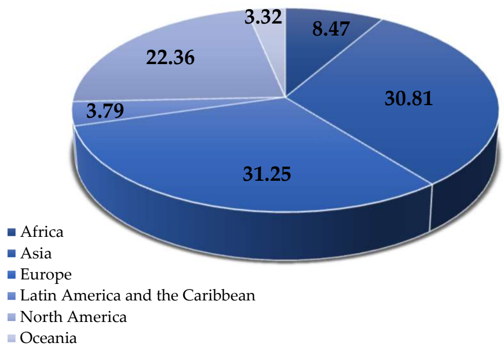
2.3. Migration: Current Situation

The main statistics of international migration are offered by the United Nations, Department of Economic and Social Affairs (UN DESA) [27], the United Nations High Commissioner for Refugees—The UN Refugee Agency (UNCHR) [12], the Organization for Economic Cooperation and Development (OECD) [28,29], the International Organization for Migration (IOM) [30], and Eurostat [11]. Based on these migration databases, statistics show that, globally, the total number of migrants has increased from 94 million in 1970, to 153 million in 1990, reaching around 244 million in 2015, from the total world population of 7.3 billion (meaning 1 person in every 30 people). Still, as a share of the world's population, the migration flow is relatively steady, representing 2.3% in 1970, and 3.3 in 2015 [30]. Around 75% of international migrants in 2015 (almost 157 million) targeted the "high-income economies ... compared with 77 million foreign-born who resided in middle-income countries (about one third of the total migrant stock) and almost 9 million in low-income countries in the same year" [30] (p. 20).

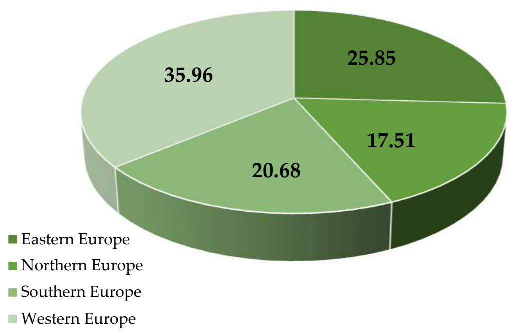
Out of 244 million migrants in 2015, the largest share was for Europe (over 31%), Asia (almost 31%), and North America (over 22%) (Figure 1a). ***In Europe***, the highest migrants' allocation was for Western Europe (36%) and Eastern Europe (26%) with a total of 76 million migrants in 2015 (Figure 1b).

The most preferred European countries by migrants in 2015 were: Germany (12 million migrants), the United Kingdom (8.5 million), France (7.8 million), Spain (5.9 million), Italy (5.8 million), Sweden (1.6 million), Austria (1.5 million), Belgium (1.4 million), Denmark (572 thousand), and Finland (315 thousand) [27]. The main origin countries of migrants into European regions were the Russian Federation (over 6 million), Poland (3.6 million), Romania (almost 3 million), and Morocco

(2.5 million) [27]. For 2016 compared to 2015, *the migration flows* increased by 30% in Germany, 4% in France, 7% in Belgium, 18% in Spain, 26% in Sweden, and decreased by 6% in the UK (mainly due to the BREXIT vote in June 2016), and by 5% in Denmark [28]. In the last few years, the main channel of migration was *family migration*, "which encompasses four main subcategories (family formation, accompanying family, family reunification and international adoption)" [28] (p. 2). The share of family migrants of the total migrant population in the most targeted 10 EU countries represents over 40% in Germany and Sweden, 50% in France, around 35% in the United Kingdom, and over 30% in Austria, Italy, Spain, Belgium, and Finland [28]. Considering the amplitude of this component, we will focus on family members' migration in future research, based on the main findings on this paper.



(**a**)



(**b**)

Figure 1. International migrant stock allocation by regions (**a**) and in Europe (**b**), 2015. Source: Own process based on United Nations, Department of Economic and Social Affairs (UN DESA) [27] data.

The asylum seekers (considered through new asylum requests into OECD countries) in 2016 amounted to 2.8 million people, "Germany remained the top recipient, with over 720,000 applications, followed by the United States (262,000) and Italy (123,000)" [30] (p. 32). The new asylum applicants in 2016 compared with 2015 increased by 63% in Germany (coming mainly from Syria, Afghanistan, Iraq), 52% in the United States (El Salvador, Mexico, Guatemala), and 47% in Italy (mainly from Nigeria, Pakistan, Gambia) [29].

Regarding the ***refugees' situation*** at the end of 2016, there were, registered, a total of 22.5 million displaced people, considered "the highest on record, although the annual rate of growth has slowed since 2012" [30] (p. 32). *The highest number of refugees* into the most targeted EU countries by migrants in 2016 are listed next. Germany received migrants as follows: Syria (375,122 people), Afghanistan (over 46,000 people), Eritrea (over 30,000), Iran (22,910 people), Turkey (19,136 people). The United Kingdom received migrants as follows: Iran (over 14,000 people), Eritrea (over 13,000), Afghanistan (over 9000 people), Syria (over 8000 people). France received migrants as follows: Sri Lanka (over 24,000) and Congo (over 14,000). Italy received migrants as follows: Eritrea (over 13,000) and Somalia (over 12,000). Spain received migrants as follows: Palestine (almost 400 people). Sweden received migrants as follows: Syria (over 34,000 people), Iraq (over 24,000), Eritrea (over 14,000), Afghanistan (over 12,000). Austria received migrants as follows: Russian Federation (over 19,000), Afghanistan (almost 12,000), Iran (over 3000). Belgium received migrants as follows: Afghanistan (over 4000) and Iraq (over 3000). Denmark received migrants as follows: Afghanistan (over 2000). Finland received migrants as follows: Somalia (almost 3000) [12]. According to the UNHCR estimations, more than half (51%) of the total number of refugees in 2016 were under the age of 18 [12]. Furthermore, around 100,000 persons risked their lives to arrive in Europe by the Mediterranean Sea (through Italy) migration corridor from January 2017 to October 2017 [31]. Migration in Europe through Italy is preferred because "... Italy has been one of the main entry points into Europe through North Africa as Libyan shores are only 290 miles away ... and Italy has been seeking EU support for dealing with the migration crisis according to the Dublin Regulation" [32].

Based on these facts, our focus is on two components of the migration flows in Europe: (1st) the emigration flows from Central and Eastern Europe (CEE) countries, targeting better labour conditions at destination countries from Western and Southern Europe (*economic migration*); and (2nd) *the refugees and asylum seekers* found in Europe due to poverty, political instability, and armed assaults in Syria, Iraq, and other neighbouring countries (*humanitarian migration*).

3. Research Methodology and Data

By reviewing the current state of the literature on migration economic consequences and in compliance with our general research objective, we defined the following *research hypotheses*:

Hypothesis 1 (H1). *There is a positive direct relationship between the immigration flows (mainly economic/labour migration) and the host country's economy/living standards (defined through the GDP per capita and per person employed).*

Hypothesis 2 (H2). *There is a positive direct relationship between the immigration flows (mainly economic/labour migration) and host country's labour market performance (defined through the employment rate (total and for the foreign population) and wage levels).*

Hypothesis 3 (H3). *Education has positive effects both on attracting new migrants and enhancing migrants' integration with positive spillovers on the economic development of host countries.*

Hypothesis 4 (H4). *Labour market policies (particularly, ALMPs) have significant positive effects on migrants' labour integration, with positive spillovers upon labour market outcomes and economic welfare.*

The first step in our methodological endeavour was to determine *the standardised indicators* (through the standardisation method described in Equation (1)) in order to cover for data benchmarking between countries. This conversion allows developing a composite indicator based on the values accounted for each country by reference to the values of other countries included in the panel [33,34].

$$y_i = \frac{x_i - mean}{sd}, \tag{1}$$

where: x_i denotes crude values of the indicator and *sd* is the standard deviation.

The standardised indicators were further used for structural equations modelling (SEM) and macro-econometric models estimation.

Moreover, we applied *linear extrapolation* as a mathematical prediction of the values of considered variables during 2016–2019, based on the relationship given in the data for the same variables across time. This method was used in line with our main research objective and focused on capturing specific ways in which migrants can enhance sustainable economic development (long run effects in the Brexit framework). Therefore, the analysis was extended beyond the existing time series for 2000–2015 to capture the outcomes in the following years within the EU framework of integration or disintegration brought by the Brexit decision. Thus, we extrapolated our data for the 2016–2019 time period (2019 being the deadline for Brexit negotiations that started in 2017, and are expected/framed by the treaty to last for two years). Even though the extrapolation process is subject to more uncertainty, it can predict a future pattern in the statistical data since it is sampled periodically. Therefore, based on previous data history, we can approximate next data points. The extrapolation formula used is described by Equation (2).

$$y(x) = y_1 + \frac{x - x_1}{x_2 - x_1}(y_2 - y_1), \tag{2}$$

where: x_1, y_1 and x_2, y_2 are the two endpoints of a linear graph and x represents the point which is to be extrapolated.

The immigration impact upon host economies, labour market outcomes, and natives was analysed through *specific macro-econometric models*. Looking into empirical methods applied by the economists for studying the international migration, Lozano and Steinberger [35] pointed out that the common methods used are the Ordinary Least Squares (OLS), Difference-in-Difference (DD) or First-Difference (FD), and Instrumental Variables (IV). In order to avoid the weaknesses, "the alternative methods for dealing with endogenous explanatory variables which are closely related to IV methods" (p. 18) are Generalized Methods of Moments (GMM) estimations and quantile or robust regressions. However, for a sensitivity analysis, it is recommended to apply and compare "various methods and/or various instruments" [36] (p. 10).

For this particular reason, in this empirical endeavour, we applied numerous econometric techniques, each trying to discard the other's limits, so that the final estimations are accurate, robust, and correctly interpreted.

Furthermore, particular attention was given to a *robustness check and validation* in order to ensure unbiased results (numerous tests were applied to see if the selected variables properly suit the models developed and capture the linkages between migration and economic development—Appendix A, Tables A5–A8).

Migration effects on economic outcomes are extremely complex and multi-levelled, so in order to estimate a proper causal relationship, the developed models require specific attention to multiple sources of bias (*endogeneity problem, potential sources, and correction methods*). For example, possible immigration restrictions in Europe after Brexit and other legal credentials established by host countries could significantly impact migration economic outcomes, but these measures are difficult to quantify for longer time periods due to their unsteady nature.

At the same time, there is a large amount of empirical literature studying the migration effects on host economies that have addressed the problem of endogeneity with respect to the educational background [37] or income/wages [21,38]. One important alternative used to obtain unbiased estimators by coping with endogeneity are instrumental variables (IV estimators, Two-Stage Least Squares—2SLS) along with the Generalised Method of Moments (GMM) or robust regression, these methods were used in our econometric research design.

IV estimations (2SLS first difference) were performed by using the divergence in demand for labour, proxied through the unemployment rate of the foreign population as the instrumental variable, in line with the previous research of McKenzie and Rapoport [39]. However, the validity of the instrument is subject to uncertainty, since it is extremely difficult to find a well-grounded instrument. In this respect, Lozano and Steinberg [35] (p. 15) clearly state that " ... difficulties in finding suitable instruments that can satisfy the significant restrictions of IV often limit application of this econometric tool". At the same time, Lozano and Steinberger [35] (p. 17) mention that "utilizing IV regression techniques places high requirements on the proposed instrument; if the instrument is not highly correlated with the explanatory variable, IV estimates will be unreliable".

In this respect, we firstly focused on within-country variation over time and developed several *fixed effects* (FE) *models* that follow the specific linear representation of panel data regression models as described by Baum [40] (p. 219) to properly analyse the immigration effects upon EU-10 receiving economies; this same configuration was also used in previous research with robust results [41,42]:

$$y_{it} = \sum_{k=1}^{k} x_{kit}\beta_{kit} + \varepsilon_{it}, \tag{3}$$

where: $i = 1, \ldots, N$; $t = 1, \ldots, T$; N is the number of panel units (countries); and T represents the number of time periods.

The *fixed effects model* or the Least Squares Dummy Variable (LSDV) model has the representation given into Equation (4) [40] (p. 220).

$$y_{it} = x_{it}\beta_k + z_i\delta + u_i + \varepsilon_{it}, \tag{4}$$

where: x_{it} is a $1 \times k$ vector of variables varying between countries and in time; β represents a $1 \times k$ vector of x coefficients; z_i is a $1 \times p$ vector of the variables that are constant in time, but vary between countries (as elements of the panel); δ represents a $p \times 1$ vector of z coefficients; u_i comprises the individual effects; and ε_{it} is the disturbance term.

These models were afterwards subject to IV estimations, dynamic GMM, and robust regression (general vs. bootstrap).

However, there was a keen focus to see how the migration performances of each of the ten EU migrant receiving countries could impact the overall outcome and change the migration patterns. For this purpose, we took into account *spatial interference* in the developed migration models. Therefore, to see if the observations are grouped together or randomly spread, we hereinafter applied numerous *spatial analysis models* (spatial lag, autoregressive) estimated through the Maximum Likelihood Estimator method (MLE), as described by Equation (5) [43].

$$y = \lambda W y + X\beta + u, \tag{5}$$

where u is assumed to be classical.

At the core of our spatial models lies the *inverse distance weights matrix (row–standardized)* (**W**), with the following characteristics:

1. Period 2000–2015: dimension: 160×160; distance band: $0 < d \leq 16{,}000$; friction parameter: 1; minimum distance: 0.0; 1st quartile distance: 1.0; median distance: 1.7; 3rd quartile distance: 2.4; maximum distance: 5.3; largest minimum distance: 0.79; smallest maximum distance: 2.81;
2. Period 2000–2019: dimension: 200×200; distance band: $0 < d \leq 16{,}000$; friction parameter: 1; minimum distance: 0.0; 1st quartile distance: 1.1; median distance: 1.7; 3rd quartile distance: 2.5; maximum distance: 7.9; largest minimum distance: 0.79; smallest maximum distance: 4.42.

The *existence (or absence) of spatial autocorrelation* was verified with the Patrick Moran (Moran's I) test, as given by Equation (6) [43] (p. 8).

$$I = \frac{R}{\sum_i \sum_j \omega_{ij}} \frac{\sum_i \sum_j \omega_{ij}(x_i - \overline{x})(x_j - \overline{x})}{\sum_i (x_i - \overline{x})^2}, \tag{6}$$

Further, we used *structural equations modelling (SEM)* in order to comprise and highlight *the links (direct, indirect, total) between the determinants of immigration flows and their economic consequences*. Simultaneous equations modelling represents an advanced technique of multivariate data analysis, used to design, test, and estimate causal relations between selected variables. The general representation of the SEM model is presented in Equation (7).

$$\begin{cases} b_{11}y_{2t} + \ldots. + b_{1m}y_{mt} + c_{11}x_{1t} + \ldots + c_{1n}x_{nt} = \varepsilon_{1t} \\ b_{21}y_{2t} + \ldots. + b_{2m}y_{mt} + c_{21}x_{1t} + \ldots + c_{2n}x_{nt} = \varepsilon_{2t} \\ \ldots\ldots\ldots\ldots.. \\ b_{m1}y_{1t} + \ldots. + b_{mm}y_{mt} + c_{m1}x_{nt} + \ldots + c_{mn}x_{nt} = \varepsilon_{mt} \end{cases}, \tag{7}$$

where t is the number of observed time periods; b_{ij} represents the y_{ij} endogenous variable's parameters; c_{ij} are the x_{ij} exogenous variable's parameters, $I = 1, \ldots, m$; and $j = 1, \ldots, n$.

The structural form of the migration model with simultaneous equations is, in fact, its initial configuration after the design stage and represents the structure of the economic process described in terms of components and linkages.

The developed SEM model provides an integrated framework of analysis for the overall migration process from a two-fold perspective (determinants-impact interactions) in line with our main research objective.

For our ***data***, we selected a large scale of indicators as proxies for the variables of developed models that include both fundamental macro-economic aggregates as well as different measures used to quantify the labour market's performance, educational attainment, inequality, and specific international migration indicators (economic versus humanitarian). Compared to previous studies, *in our paper, we focus on analysing both economic (labour) and humanitarian migration indicators*, with an impact quantified through national data compiled for ten EU migrant receiving countries. Business climate indicators of the European countries "provide an important class of information regarding the perception of current and further performance of economic activity" [44] (p. 139), with impact on the labour force dynamics, which suffered major changes [45], at the forefront of migration.

Hence, we analysed the following *variables* (Appendix A, Table A1):

- *Economic activity and other specific indicators*: GDP per capita in Euro (GDP_cap), GDP per person employed, in USD (United States Dollars) (GDP_emp); employment rate (ER, ER_F) and unemployment rate (UR, UR_F, UR_LT) (%)—total, foreign population (F), long term (LT); part-time and temporary contracts employment rate (ER_part) (%); annual net earnings of a two-earner married couple with two children (EARN) (Euro) and earnings dispersion (Decile 9/Decile 5) (EARN_disp); expenditures on active (ALMPs) and passive (PLMPs) labour market policies (% of GDP); educational level (both general and vocational) reflected through the educational attainment for tertiary education (levels 5–8) (EDU_T), and the participation rate in education and training (EDU_part); at-risk-of-poverty rate (POV_R); life expectancy at birth (LE); business enterprise research and development expenditures for the business enterprise sector (BERD) (% of GDP); Gini coefficients (index);
- *Globalization indicators*: KOF Index of Globalization—overall and economic (KOF_T, KOF_E); Export (X, mil. USD); inflows of foreign direct investment (FDI_I, mil. USD);
- *International migration indicators*: flows and stock of immigrants and foreign population (IMIG), flows of asylum applicants (ASYL).

The data and associated macro-econometric models were processed in Stata.

To comprise the welfare effects and long term economic development in our macro-econometric models, we used, in some models, *GDP per capita (and per person employed) as a dependent variable*, while the other indicators were used as independent variables (considered for General Fixed Effects Models, and SEM Models). Moreover, we applied Multiple Fixed Effects Models (8 Models), considering the following as dependent variables: GDP_cap, GDP_emp, ER, ER_F, EDU_T, EARN, EARN_disp, and Gini.

On one side, we used IMIG and ASYL as independent variables for each model to try and capture the immigration effects in the absence of other explanatory variables. These models were processed in line with our first two research hypotheses and, thus, tried to better comprise the immigration impact upon host economies and labour markets. Also, to reveal the migration patterns and determinants/drivers towards the considered host economies, we used IMIG and ASYL, each one as dependent variables (considered for Spatial lag models).

The panel covers ten migrant receiving countries, EU-10 Member States, namely, Belgium, Denmark, Finland, France, the United Kingdom, Germany, Austria, Sweden, Italy, and Spain. We selected these countries as being the most targeted by immigrants and asylum seekers according to Eurostat [11] and OECD [28,29] data. Even though the panel considered is balanced, we must account for its relatively small size as a limit of our research, since robust and timely migrant data is not always readily available, while the existing migration data may have certain imperfections (also stated, for example, by Soon [46]).

Figure 2 graphically highlights the number of immigrants (a), asylum applicants (b), and GDP per capita levels (c) in 2015, and estimated for 2019, for the ten EU host countries. Thus, *immigrants (IMIG)* were at the highest level in Germany and the United Kingdom in 2015, these countries tending to be preferred even in 2019, under the Brexit negotiations deadline, even though the number slightly decreases. The *asylum seekers (ASYL)* were mostly found in Germany and Italy in 2015, maintaining at high levels in these countries for 2019, but especially decreasing for the UK after the Brexit. The *GDP per capita* is at the highest level in Sweden, for 2015, followed by an increase in Austria for the 2019.

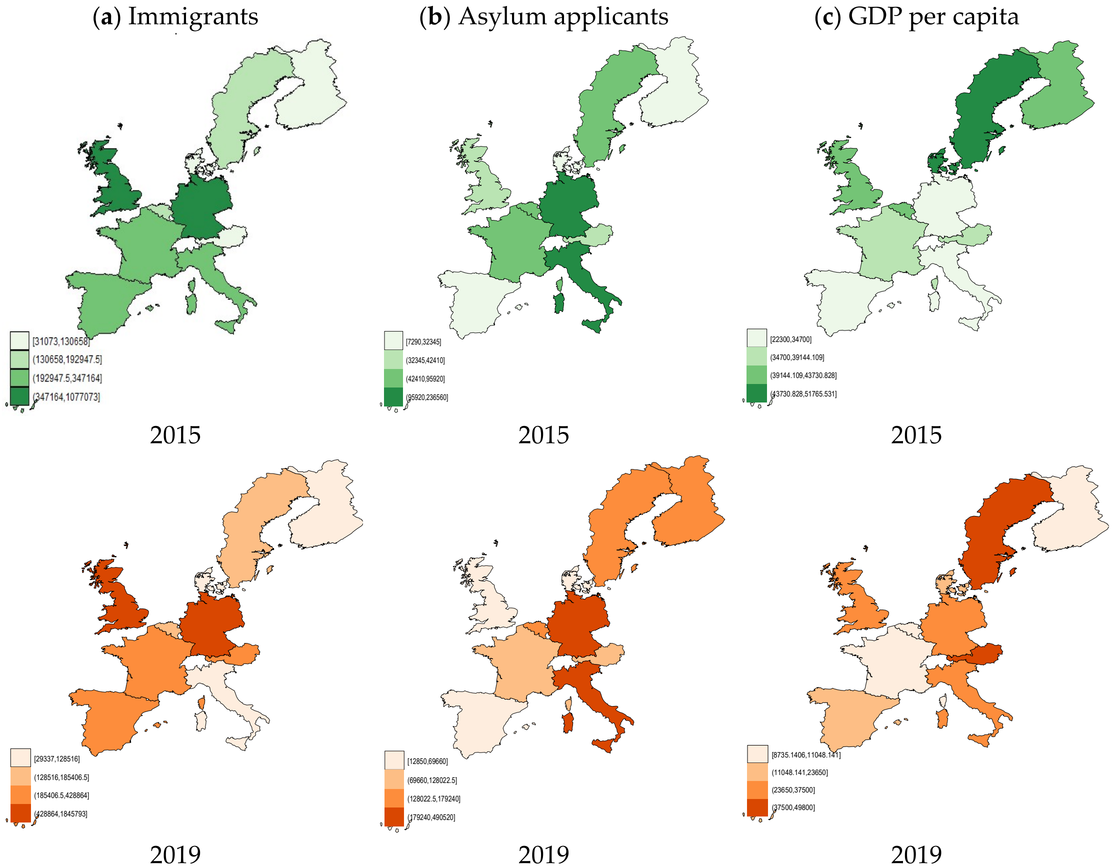


Figure 2. Number of immigrants (**a**); asylum applicants (**b**); and GDP per capita (**c**) levels in 2015 and 2019 (estimated) in European Union (EU)-10 receiving countries. Source: Own process of Eurostat [11], Organization for Economic Cooperation and Development (OECD) [28,29] and United Nations Databases/United Nations High Commissioner for Refugees (UNHCR) [12] data in Stata.

The main databases used for collecting the data are Eurostat—European Commission [11], International Migration Database—OECD [28,29], World Development Indicators—World Bank [47], the United Nations Databases/United Nations High Commissioner for Refugees—UNHCR [12], UNU WIDER (The United Nations University World Institute for Development Economics Research)—World Income Inequality Database [48], and ETH Swiss Federal Institute of Technology Zurich [49], as described in the Appendix A, Table A1.

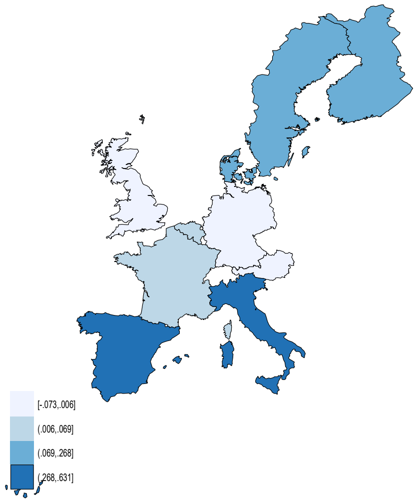
4. Results and Discussion

4.1. Effects of Economic and Humanitarian Migration upon EU-10 Host Economies Revealed by Macro-econometric Models and Spatial Analysis Results

In order to verify each Hypothesis drawn in Section 3 (H1–H4), in the first stage of our empirical analysis we developed *five macro-econometric spatial lag (autoregressive) models* of the shaping factors of immigration and asylum seeker inflows for the EU-10 host economies, during 2000–2015. The estimation results are synthesised in the Appendix A, Table A2 (for IMIG variable), Table A3 (for ASYL variable), along with descriptive statistics in Table A4. We consider these models important for a better understanding of the migration motives, migration patterns, and determinants/drivers towards the considered host economies, in order to essentially capture the way in which migration could further impact the EU-10 countries by contributing to their sustainable economic development (measured through the GDP per capita).

The spatial lag model controls for spatial autocorrelation in *the dependent variable (immigration flows)* and includes *migration outcomes in neighbouring locations as an additional explanatory variable.*

The models have been tested for positive and/or negative spatial autocorrelation based on *Moran's I test* that revealed the presence of global autocorrelation and, in some cases, local autocorrelation as well, according to data found in—Figure 3a,b. Therefore, the migration performances achieved by the neighbouring locations are also essential for impacting economic welfare in the considered host economies.



(**a**)

2000–2015	MORAN'S I TEST FOR GLOBAL SPATIAL AUTOCORRELATION				
VARIABLE	I	E(I)	sd(I)	z	*p*-Value
IMIG	0.402	−0.006	0.017	23.750	0.000
ASYL	0.089	−0.006	0.016	5.803	0.000
GDP_cap	0.480	−0.006	0.017	28.257	0.000
GDP_emp	0.255	−0.006	0.017	15.112	0.000
EARN	0.279	−0.006	0.017	16.529	0.000
ER	0.277	−0.006	0.017	16.415	0.000
ER_F	0.131	−0.006	0.017	7.955	0.000
UR	0.107	−0.006	0.017	6.569	0.000
UR_F	0.207	−0.006	0.017	12.563	0.000

(**b**)

Figure 3. Moran's I test for local (**a**) and global (**b**) spatial autocorrelation. Source: authors' research.

LM (Lagrange Multiplier) tests are significant for the entire sample (2000–2015), thus indicating the presence of spatial dependence. *Rho* reflects the spatial dependence inherent in the sample data, measuring the average influence on observations by their neighbouring observations. It has a positive effect and is highly significant for the 2000–2015 sample (Appendix A, Tables A2 and A3). Moreover, we applied several *panel unit-root tests* that pointed out (in some cases) that non-stationarity might be an issue, especially for the 2000–2015 time series (Appendix A, Table A5a,b). As a result, for the study of immigration determinants, we used spatial lag models, along with SEM, estimated through the MLE, since the Ordinary Least Squares (OLS) estimators could be less efficient.

The overall panel results highlight that an increase in the number of immigrants is associated with an improvement in labour market outcomes, hereby reflected through an employment increase (both total and for the foreign population or in the case of part-time/temporary contracts), along with a reduction of long-term unemployment and enhanced active labour market measures. However, the paradox is that a slight increase in GDP per capita and per person employed and of annual net earnings induces a decrease in immigration inflows that could indicate that immigrants are searching for a stable job that provides income and employment security, work-life balance, and welfare. On the other hand, the international flows of goods, services, and capital, namely FDI (Foreign Direct Investment) inwards and exports, have a positive impact upon international migration, thus inducing additional immigration inflows.

There are important positive consequences generated by the immigration inflows, along with other socio-economic variables, on *GDP per capita*. We focused on GDP per capita in line with our *first research hypothesis* (as reflected by the results obtained and synthesised in Table 1a,b).

Within this context, for the migration impact analysis, we firstly focused on within country variation over time and configured *a general fixed effects model* in order to assess the effects of economic and humanitarian immigration upon the GDP per capita (Table 1a,b, model 1).

Moreover, to account for the endogeneity problem inherent in migration models (as described in the methodological endeavour) we also applied other econometric procedures, namely, the *2SLS with first difference estimation* (IV by using the divergence in demand for labour, proxied through the unemployment rate of the foreign population, as the instrumental variable, used before by [39]) in model 2; *Arellano-Bond dynamic panel data estimation (Dynamic GMM) in a two-step process*, including instruments for differenced equations and robust standard errors to control for heteroscedasticity in model 3; *robust regression—general* (model 4) and *bootstrap* (50 replications) estimation (model 5). All the results obtained throughout different econometric procedures are slightly different in size, but consistent in sign *in the presence of statistical significance* (statistically significant coefficients did not change their sign throughout different procedures).

Table 1. (**a**) Results of the models developed for assessing the economic consequences of immigration upon host economies, *2000–2015 sample*—General model; (**b**) Results of the models developed for assessing the economic consequences of immigration upon host economies, *2000–2019 sample*—General model.

(a)					
Dependent Variable: GDP_Cap_st (D.GDP_Cap_st in Model 2)	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
	Fixed Effects (FE)	**IV FD (2SLS) D. Indep_Var**	**Dynamic GMM (Arellano-Bond)**	**Robust Regression**	**Robust Reg. Bootstrap**
IMIG_st	0.278 ***	0.0203	0.277	0.0342	0.0342
	(0.0775)	(0.0783)	(0.550)	(0.0581)	(0.0785)
ASYL_st	−0.214 ***	−0.131 **	−0.603 *	−0.213 ***	−0.213 *
	(0.0394)	(0.0490)	(0.260)	(0.0497)	(0.0983)
ER_st	−0.152	0.289	15.47	−0.340 ***	−0.340 **
	(0.113)	(0.179)	(10.00)	(0.0767)	(0.125)
EDU_T_st	0.0626	−0.00710	1.666	0.100	0.100
	(0.0832)	(0.0994)	(1.287)	(0.0558)	(0.0525)
BERD_st	0.365 **	0.260	−2.442	0.0723	0.0723
	(0.114)	(0.174)	(7.999)	(0.0673)	(0.0556)
ALMP_st	0.262 ***	0.263 **	3.993*	0.193 **	0.193 *
	(0.0709)	(0.0976)	(2.021)	(0.0587)	(0.0761)
PLMP_st	−0.153 *	−0.105	5.250	−0.0528	−0.0528
	(0.0603)	(0.0897)	(3.168)	(0.0583)	(0.0895)
Gini_st	−0.0668	−0.0280	1.053	−0.143 *	−0.143
	(0.0782)	(0.0615)	(0.867)	(0.0703)	(0.0998)
EARN_st	0.774 ***	0.391 ***	4.449	0.900 ***	0.900 ***
	(0.0728)	(0.117)	(2.288)	(0.0718)	(0.0920)
L.GDP_cap_st			−14.80		
			(8.311)		
_cons	−0.000000833	0.0274		−0.0460	−0.0460
	(0.0266)	(0.0263)		(0.0389)	(0.0570)
Test parameters = 0	F(9, 141) = 47.27 p = 0.0000			F(9, 150) = 52.94 p = 0.0000	
Breusch-Pagan LM test of independence	Chi2(45) = 290.444 p = 0.0000				
Hausman test (RE vs. FE)	Chi2(9) = 195.15 p = 0.0000				
Sargan statistic (override test of all instruments)		Chi2(1) = 0.320 p = 0.5719			
Arellano-Bond test (zero autocorrelation in FD errors)			z1 = 0.84885 p = 0.3960		
N	160	150	140	160	160
R^2	0.751	0.228		0.761	0.761

Table 1. *Cont.*

(b)					
Dependent Variable: GDP_Cap_st (D.GDP_Cap_st in Model 2)	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
	Fixed Effects (FE)	**IV FD (2SLS) D. Indep_Var**	**Dynamic GMM (Arellano-Bond)**	**Robust Regression**	**Robust Reg. Bootstrap**
IMIG_st	0.297 **	0.105	0.00781	−0.0215	−0.0215
	(0.0990)	(0.0894)	(0.266)	(0.0547)	(0.0838)
ASYL_st	−0.234 ***	−0.196 ***	−0.309 *	−0.0680 *	−0.0680
	(0.0344)	(0.0450)	(0.153)	(0.0265)	(0.0428)
ER_st	0.0242	0.322	2.729	−0.149	−0.149
	(0.206)	(0.219)	(5.839)	(0.0808)	(0.199)
EDU_T_st	0.0782	0.00540	−6.906	−0.0319	−0.0319
	(0.0586)	(0.0826)	(6.682)	(0.0428)	(0.0586)
BERD_e_st	0.481 **	0.555 **	6.388	0.130	0.130
	(0.155)	(0.205)	(4.806)	(0.0748)	(0.106)
ALMPs_st	0.922 ***	0.532 ***	−1.017 **	0.0966	0.0966
	(0.113)	(0.113)	(0.328)	(0.0535)	(0.150)
PLMPs_st	0.109	0.0321	−0.392	0.0611	0.0611
	(0.0864)	(0.102)	(1.805)	(0.0599)	(0.0879)
Gini_st	0.184	0.0893	0.298 **	−0.0877	−0.0877
	(0.113)	(0.0747)	(0.109)	(0.0729)	(0.119)
EARN_st	0.192 *	0.145	2.577	0.808 ***	0.808 ***
	(0.0801)	(0.120)	(2.491)	(0.0608)	(0.213)
L.GDP_cap_st			−1.657		
			(0.926)		
_cons	−0.0793	−0.0112		−0.0814	−0.0814
	(0.0497)	(0.0299)		(0.0451)	(0.0648)
Test parameters = 0	F(9, 181) = 13.32 p = 0.0000			F(9, 190) = 52.40 p = 0.0000	
Breusch-Pagan LM test of independence	Chi2(45) = 344.376 p = 0.0000				
Hausman test (RE vs. FE)	Chi2(9) = 426.40 p = 0.0000				
Sargan statistic (override test of all instruments)		Chi2(1) = 0.004 p = 0.9480			
Arellano-Bond test (zero autocorrelation in FD errors)			z1 = 0.7534 p = 0.4512		
N	200	190	180	200	200
R^2	0.399	0.220		0.713	0.713

Note: Standard errors in parentheses; * p < 0.05, ** p < 0.01, *** p < 0.001. Source: authors' research.

The fixed effects model results show that there is evidence to attest that labour immigration has significant positive economic effects, leading to important increases in GDP per capita levels, especially in the long term (0.278 estimated coefficient for IMIG, extremely statistically significant at 0.1% level in the 2000–2015 sample and 0.297 significant at 1% level for 2000–2019). IV estimations are in line with FE results. We tested the instrument relevance by regressing the outcome on the instrument and found an F-statistic of 9.96 for the 2000–2015 sample, and 10.24 in the 2000–2019 sample, which is above the 10 level that causes concern, so as we can say that the instrument's weakness is low. Dynamic GMM estimations are consistent with FE and IV results (even though they have a lower statistical significance) and show the same positive reverberation of labour immigration upon host countries' GDP per capita, while the asylum seekers tend to have a negative impact. The Arellano-Bond test for zero autocorrelation in first-differenced errors gives accuracy to these estimations since it reveals no autocorrelation (order z1 = 0.84885, p = 0.3960; z2 = 0.31133, p = 0.7555; chi2(94) = 5.45×10^{-22}, p = 0.9998), while the Sargan test builds up additional robustness by confirming the null hypothesis and revealing that the over-identifying restrictions are valid.

Moreover, to further deal with endogeneity and to account for the fact that the dataset might be driven by larger economies (e.g., Germany) we applied the robust regressions (general and bootstrap). The estimated coefficients are consistent in sign even though are slightly different in size (lower magnitude) and less significant, and they highlight migrants' important role in enhancing the economic development of host countries.

Education is essential for migrants' integration and overall economic growth, hence an increase in the educational background of host countries' labour force (comprising both natives and migrants) towards a tertiary level has significant positive economic consequences, leading to an increase in GDP per capita (as reflected by the 2000–2015 estimations). However, for the 2000–2019 sample, these coefficients are weaker and remain statistically insignificant. At the same time, large expenditures on research and development (BERD) could frame an innovative environment with important positive spillovers on welfare and living standards (statistically significant and extremely high, positive coefficients for the BERD variable for both samples FE and IV estimations). Nevertheless, efficient active labour market policies are also essential for the labour market performance and long-term economic development, as reflected by our estimations. ***Thus, H3 is partially confirmed and H4 is fulfilled***.

Therefore, in the framework of new accurate EU migration policies, migrants can play a decisive role in enhancing economic welfare for host countries, even in the Brexit context that brings to the front the risk of reinforcing barriers to intra-EU labour mobility. This is the case for the unskilled workers that could further lead to negative spillover effects on intellectual capital movements and economic development of migrant sending and receiving countries. At the same time, failing to properly coordinate the current refugee crisis in Europe and to integrate the asylum seekers and refugees into host economies/labour markets might prove to be detrimental since our estimations reveal negative coefficients for the ASYL variable. ***Thus, H1 is partially fulfilled***.

Nevertheless, there are important effects induced by immigration upon host economies, reflected not only through the GDP per capita (Table 1a,b). Based on our previous results, the research was continued through developing *new macro-econometric models* that account for an accurate assessment of the economic consequences of international migration on host economies and labour markets (Table 2a,b).

Therefore, we processed other models that try to capture the impact of increased labour immigration and asylum seeker inflows upon GDP per person employed (model 2), total employment rate (model 3), employment rate of the foreign population (model 4), tertiary education attainment (model 5), earnings (model 6), earnings dispersion (model 7), and income inequality (model 8).

For this second set of estimations, we focused on three econometric procedures: fixed effects (within country variation) presented in Table 2a; panel 2SLS (IV) estimation—first difference (FD) reported in Table 2b (model 3 and model 4 were processed in a first difference approach without the instrument for its connection to the dependent variable) and Arellano-Bond dynamic panel data estimation—GMM in a two-step process, including instruments for differenced equation and robust standard errors to control for heteroscedasticity in Table 2c. These methods comply with our research objectives and are widely used for processing migration models [50,51] since *they cover for endogeneity and discard other problems such as reverse causality*.

By carefully analysing the estimated coefficients as resulted from various econometric modelling procedures, we found evidence to attest strong interdependencies between the labour immigration process (IMIG variable) and EU-10 host countries' socio-economic performances.

Thus, the specific ways in which migrants can contribute to host economies as reflected by the 2000–2019 sample estimations is through an active labour market participation (increased ER and ER_F as proved by highly statistically significant coefficients estimated through all three methods considered) that leads to slightly higher levels of household earnings (EARN, 0.257 significant at 5% in FE; 0.103 significant at 5% in IV; 0.0976 extremely statistically significant at 0.1% in GMM). ***Therefore, H2 is reconfirmed and fulfilled***.

Overall, additional labour immigration flows are positively embedded into host economies, leading to an improvement in living standards and welfare (GDP_cap), even in the Brexit framework.

Table 2. (**a**) Results of the *Fixed Effects models (within country variation)* developed for assessing the economic consequences of immigration upon host economies, both samples (2000–2015 and 2000–2019)—Multiple models; (**b**) Results of the *Panel 2SLS (IV) estimation (first difference)* developed for assessing the economic consequences of immigration upon host economies, both samples (2000–2015 and 2000–2019)—Multiple models; (**c**) Results of the *Arellano Bond Dynamic GMM estimations* for both samples (2000–2015 and 2000–2019).

(a)								
Fixed Effects (FE)								
2000–2015	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	GDP_cap	GDP_emp	ER	ER_F	EDU_T	EARN	EARN_disp	Gini
IMIG	0.227	0.0233	0.241 ***	0.749***	0.0258	−0.0384	0.217 **	−0.209 *
	(0.134)	(0.0233)	(0.0587)	(0.124)	(0.106)	(0.128)	(0.0739)	(0.0867)
ASYL	−0.0269	−0.0223	0.0655 *	−0.0105	0.0968	0.198 **	−0.0696	0.178 ***
	(0.0713)	(0.0125)	(0.0313)	(0.0662)	(0.0568)	(0.0684)	(0.0394)	(0.0463)
_cons	−0.000000492	0.000000165	−0.0000008	-9.65×10^{-8}	-1.09×10^{-8}	1.93×10^{-8}	−0.00000163	6.62×10^{-8}
	(0.0516)	(0.00902)	(0.0227)	(0.0479)	(0.0411)	(0.0495)	(0.0286)	(0.0335)
N	160	160	160	160	160	160	160	160
R^2	0.019	0.023	0.154	0.205	0.022	0.055	0.062	0.103
2000–2019	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	GDP_cap	GDP_emp	ER	ER_F	EDU_T	EARN	EARN_disp	Gini
IMIG	0.238 *	0.0454 **	0.223 ***	0.591 ***	−0.109	0.257 *	0.183 *	0.115
	(0.107)	(0.0162)	(0.0354)	(0.0781)	(0.143)	(0.101)	(0.0744)	(0.0662)
ASYL	−0.0703	0.00108	0.0248 *	−0.0623 *	0.123 *	0.139 ***	−0.0835 **	0.102 ***
	(0.0373)	(0.00565)	(0.0124)	(0.0273)	(0.0501)	(0.0354)	(0.0260)	(0.0231)
_cons	−0.0780	0.0191 *	0.00591	0.0112	0.231 **	0.153 **	−0.0655	0.0347
	(0.0601)	(0.00911)	(0.0199)	(0.0440)	(0.0807)	(0.0570)	(0.0419)	(0.0373)
N	200	200	200	200	200	200	200	200
R^2	0.029	0.062	0.309	0.250	0.034	0.202	0.055	0.193

Table 2. *Cont.*

(b)								
Panel 2SLS (IV) Estimation—First Difference (FD)								
2000–2015	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	D.GDP_cap	D.GDP_emp	D.ER	D.ER_F	D.EDU_T	D.EARN	D.EARN_disp	D.Gini
D.IMIG	0.113	0.0249	0.179 ***	0.461 ***	−0.0417	−0.000869	0.0656	−0.0357
	(0.0807)	(0.0160)	(0.0427)	(0.130)	(0.0610)	(0.0515)	(0.0519)	(0.0979)
D.ASYL	−0.119 *	−0.0239 *	0.000262	−0.0433	0.0269	0.0259	−0.0386	0.0737
	(0.0541)	(0.0107)	(0.0286)	(0.0871)	(0.0409)	(0.0345)	(0.0348)	(0.0656)
_cons	0.0897 ***	0.0183 ***	0.0171	0.0502	0.0958 ***	0.119 ***	−0.0166	0.0384
	(0.0220)	(0.00437)	(0.0116)	(0.0354)	(0.0167)	(0.0140)	(0.0141)	(0.0267)
Sargan test (override of all instruments)	Chi2(1) = 4.607 $p = 0.0318$	Chi2(1) = 1.122 $p = 0.2895$			Chi2(1) = 1.187 $p = 0.2759$	Chi2(1) = 0.842 $p = 0.3587$	Chi2(1) = 0.188 $p = 0.6646$	Chi2(1) = 0.857 $p = 0.3545$
N	150	150	150	150	150	150	150	150
R^2	0.037	0.039	0.110	0.078	0.005	0.004	0.015	0.008
2000−2019	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	D.GDP_cap	D.GDP_emp	D.ER	D.ER_F	D.EDU_T	D.EARN	D.EARN_disp	D.Gini
D.IMIG	0.158	0.0279 *	0.172 ***	0.428 ***	−0.0883	0.103 *	0.0321	0.0516
	(0.0904)	(0.0133)	(0.0362)	(0.109)	(0.0764)	(0.0516)	(0.0471)	(0.0826)
D.ASYL	−0.184 ***	−0.0177 *	−0.0165	−0.0976	−0.0143	−0.0191	−0.0379	0.0457
	(0.0484)	(0.00715)	(0.0194)	(0.0585)	(0.0410)	(0.0277)	(0.0252)	(0.0442)
_cons	0.0308	0.0183 ***	0.0227 *	0.0535	0.128 ***	0.129 ***	−0.0266 *	0.0418
	(0.0251)	(0.00371)	(0.0101)	(0.0303)	(0.0213)	(0.0144)	(0.0131)	(0.0230)
Sargan test (override of all instruments)	Chi2(1) = 2.640 $p = 0.1042$	Chi2(1) = 0.964 $p = 0.3261$			Chi2(1) = 0.894 $p = 0.3445$	Chi2(1) = 0.193 $p = 0.6601$	Chi2(1) = 0.929 $p = 0.3352$	Chi2(1) = 1.298 $p = 0.2545$
N	190	190	190	190	190	190	190	190
R^2	0.072	0.040	0.108	0.076	0.010	0.020	0.012	0.011

Table 2. *Cont.*

(c)								
Arellano Bond Dynamic GMM Estimations								
2000–2015	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	GDP_cap	GDP_emp	ER	ER_F	EDU_T	EARN	EARN_disp	Gini_st
L.GDP_cap	0.716 *** (0.116)							
IMIG	0.0673 *** (0.00823)	−0.00184 (0.0101)	0.122 *** (0.0241)	0.176 (0.124)	−0.0719 (0.0539)	0.0568 *** (0.0124)	0.227 (0.133)	−0.146 * (0.0695)
ASYL	−0.0355 ** (0.0138)	0.000909 (0.00448)	−0.0142 (0.0165)	−0.0176 (0.0477)	−0.000256 (0.0244)	−0.00710 * (0.00311)	−0.0355 (0.0226)	0.117 *** (0.0351)
L.GDP_empl		0.628 *** (0.116)						
L.ER			0.723 *** (0.0721)					
L.ER_F				0.665 *** (0.100)				
L.EDU_T					1.014 *** (0.143)			
L.EARN						0.976 *** (0.0525)		
L.EARN_disp							1.000 *** (0.163)	
L.Gini								0.175 (0.225)
Sargan test (overrides are valid)	Chi2 = 9.698 p = 1.000	Chi2 = 8.320 p = 1.000	Chi2 = 8.861 p = 1.000	Chi2 = 7.185 p = 1.000	Chi2 = 6.616 p = 1.000	Chi2 = 8.555 p = 1.000	Chi2 = 6.756 p = 1.000	Chi2 = 3.743 p = 1.000
Arellano-Bond test (zero autocorrelation in FD errors)	z1 = −1.826 p = 0.0678 z2 = −2.297 p = 0.0216	z1 = −2.018 p = 0.043 z2 = −1.953 p = 0.050	z1 = −1.987 p = 0.046 z2 = −1.045 p = 0.2959	z1 = −2.158 p = 0.030 z2 = −1.372 p = 0.169	z1 = −1.287 p = 0.198 z2 = 0.425 p = 0.670	z1 = −1.284 p = 0.198 z2 = −1.055 p = 0.2914	z1 = −2.545 p = 0.010 z2 = 2.227 p = 0.025	z1 = −1.114 p = 0.265 z2 = −0.779 p = 0.435

Table 2. *Cont.*

(c)								
Arellano Bond Dynamic GMM Estimations								
N	140	140	140	140	140	140	140	140
2000–2019	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	GDP_cap	GDP_emp	ER	ER_F	EDU_T	EARN	EARN_disp	Gini_st
L.GDP_capita	1.009 *** (0.0456)							
IMIG	0.0429 * (0.0173)	0.00409 (0.00976)	0.132 * (0.0579)	0.129 (0.131)	−0.0782 (0.0576)	0.0976 *** (0.0189)	0.0210 (0.0172)	−0.0401 (0.118)
ASYL	−0.0565 *** (0.0117)	0.00215 (0.00207)	−0.0334 * (0.0155)	−0.0241 (0.0390)	0.00163 (0.0128)	−0.0343 *** (0.00378)	−0.0115 (0.0118)	0.0629 * (0.0270)
L.GDP_emp		0.766 *** (0.118)						
L.ER			0.866 *** (0.0693)					
L.ER_F				0.836 *** (0.133)				
L.EDU_T					0.982 *** (0.140)			
L.EARN						1.055 *** (0.0199)		
L.EARN_disp							0.964 *** (0.244)	
L.Gini								0.452 ** (0.170)
Sargan test (overrides are valid)	Chi2 = 9.742 *p* = 1.000	Chi2 = 8.680 *p* = 1.000	Chi2 = 6.724 *p* = 1.000	Chi2 = 6.159 *p* = 1.000	Chi2 = 6.849 *p* = 1.000	Chi2 = 7.461 *p* = 1.000	Chi2 = 4.926 *p* = 1.000	Chi2 = 3.567 *p* = 1.000
Arellano-Bond test (zero autocorrelation in FD errors)	z1 = −2.262 *p* = 0.0237 z2 = −2.288 *p* = 0.0221	z1 = −2.255 *p* = 0.024 z2 = −1.951 *p* = 0.051	z1 = −2.522 *p* = 0.011 z2 = −1.055 *p* = 0.2914	z1 = −1.995 *p* = 0.045 z2 = −1.237 *p* = 0.215	z1 = −1.125 *p* = 0.260 z2 = 0.299 *p* = 0.7644	z1 = −1.269 *p* = 0.204 z2 = −1.126 *p* = 0.2598	z1 = −1.971 *p* = 0.048 z2 = 2.029 *p* = 0.0424	z1 = −2.367 *p* = 0.017 z2 = −0.144 *p* = 0.8851
N	180	180	180	180	180	180	180	180

Note: Standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Source: authors' research.

If up until now (2000–2015 timespan) the most important positive effects were induced mainly through significant improvements in labour market outcomes both for natives and especially for the foreign population (including increases in GDP per person employed), in the long-run Brexit framework (2000–2019), the GMM estimations point out important rises in GDP per capita (0.0429 significant at 5% level), total employment rate (0.132 significant at 5% level), and annual net earnings (0.0976 extremely significant at 0.1% level) for EU-10 under the compelling effects of labour immigration. ***Thus, H1 and H2 are reconfirmed***. The lagged variables are also positive and statistically significant, thus capturing important dynamic effects.

Also in these GMM models, the Arellano-Bond test for zero autocorrelation in first-differenced errors gives accuracy to estimations since it reveals no autocorrelation for all eight models, while the Sargan test builds up additional robustness by confirming the null hypothesis and revealing that the over-identifying restrictions are valid.

On the other hand, humanitarian migration has ambiguous effects, due to its nature, the estimated coefficients being less statistically significant and often changing in sign from one period to another. However, the need for some extremely comprehensive and efficient ways to manage this refugee crisis in Europe is a certainty. ***Thus, H1 is partially fulfilled***.

These final estimations show that the Brexit effects will induce a multitude of changes at different levels and require an integrated framework of analysis. All of these mechanisms should, therefore, be a major priority for policy makers and governments (particularly in Europe, but also worldwide, since the UK is an important trade and investment partner for other non-European countries, like USA, China, Japan, Singapore, Canada) in order to enhance the positive credentials of this process and significantly diminish potential negative spillovers.

4.2. Effects of Economic and Humanitarian Migration upon EU-10 Host Economies Revealed by Structural Equations Modelling (SEM) Results

We further developed a new complex model based on structural equations (SEM) that aims to analyse international migration (both economic and humanitarian) from a double perspective of the shaping factors and economic consequences upon host countries, as shown in Figure 4 (general model configuration—Figure 4a, estimations for the 2000–2015 period—Figure 4b and 2000–2019 period—Figure 4c).

SEM modelling allowed us to identify the direct, indirect, and total interlinkages between the migration process and the economic performances of host countries from an integrated framework that takes into account both the major determinants of the immigration inflows (economic and humanitarian), the mediated factors (policies/adopted measures/labour market performance of employees, both migrants and natives), and final output (GDP per capita).

We consider the SEM procedures essential because the Breusch-Pagan LM test (applied when $T > N$) showed some evidence of cross-sectional dependence, while unit-roots may still be problematic. The estimation of the SEM model has thus been performed through the MLE method.

Therefore, we were able to verify, in this case, every Hypothesis, H1–H4, through an integrated research framework. The results obtained have combined to five an adequate identification of the direct, indirect, and total effects of international migration upon the EU-10 host countries, by taking into account the inter-relationships between the variables (Tables 3 and 4).

The assay of the pattern has been performed partly by applying the Wald test for each equation and through the correspondence tests applied to the pattern (such as Comparative Fit Index, Tucker-Lewis Index, Size of residuals, Information criteria: Akaike, Baesian).

We also calculated the Cronbach's Alpha coefficients (per item and total scale) which underline the accuracy of the model. The results of all these tests applied are presented in the Appendix A, Tables A5–A8.

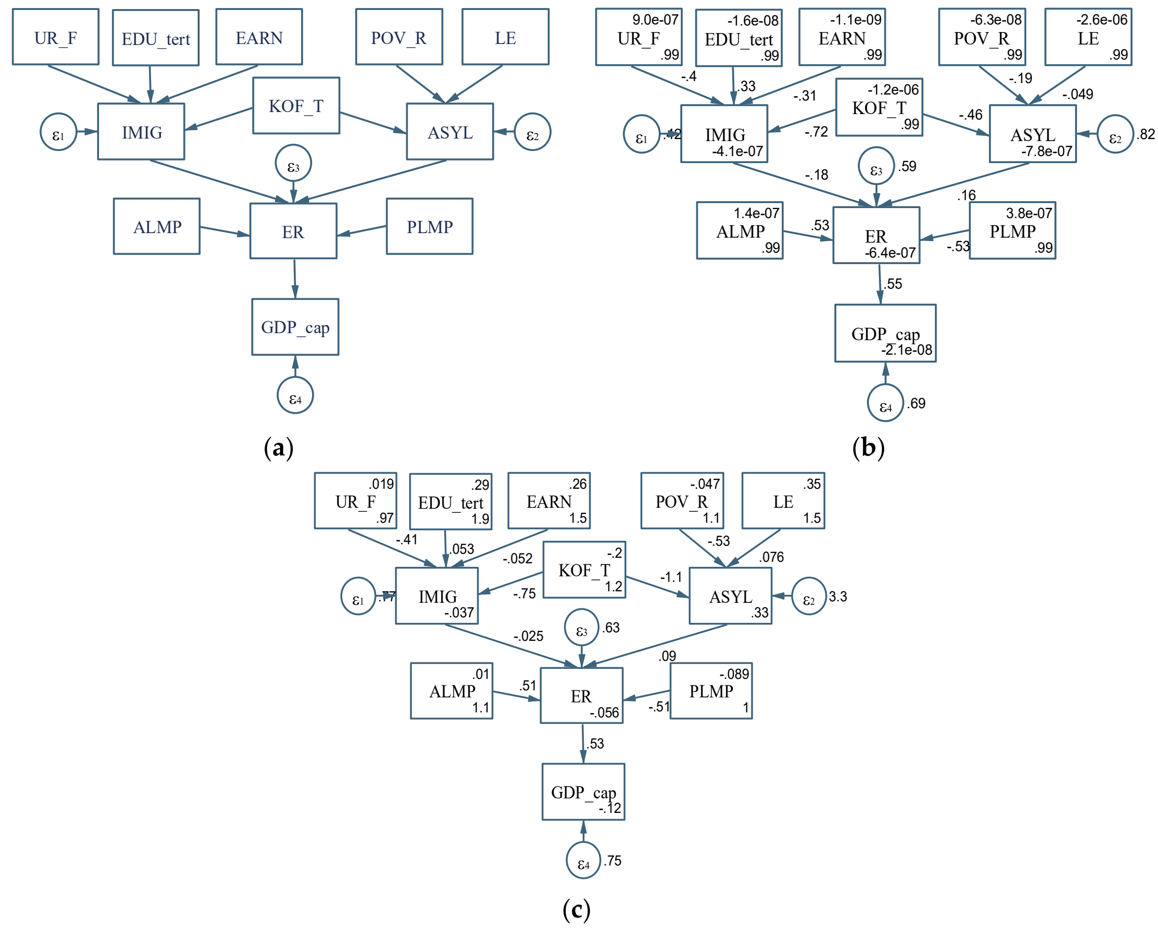


Figure 4. Structural Equations Model (SEM) developed for the analysis of international migration (both economic and humanitarian) from the host country's perspective: general model configuration (**a**); 2000–2015 (**b**); and 2000–2019 (**c**). Source: authors' research.

SEM model results reconfirm our previous estimations and highlight the positive ways in which migrants' can contribute to the host country's welfare. Thus, when the estimated coefficients are extremely significant from a statistical point of view at a 0.01 level, there is evidence to attest that both labour and humanitarian migration can lead to GDP per capita increases (total effects). ***Thus, H1 is reconfirmed and fulfilled***.

As for the mediated impact, we can see that an improvement in the educational background has positive effects on enhancing international migration that leads to improvement in employment rates with extremely important further positive impact on economic welfare (increases in GDP per capita).

The asylum seekers (found in a smaller number than the economic immigrants) tend to also generate positive effects upon the labour market, at least in the short-term, slightly increasing the employment rate. ***Thus, H2 and H3 are reconfirmed and fulfilled***.

The results of the empirical analysis complete the core elements of the host country's macroeconomic environment in shaping the attitudes towards migration.

Estimations show that the additional immigrant flow has no negative effects on the labour market performance of natives and the foreign population already existing in the considered host economies—elements that were also considered by Card and DiNardo [20]—but, on the contrary, the increased flow positively determines an increase in the employment rates (aspects shown by the estimated coefficients that are statistically significant and can, therefore, be interpreted).

Table 3. Results of the SEM models developed for the comprehensive analysis of the immigration shaping factors and their economic consequences upon host countries—Overall model estimation.

	(1) 2000–2015	(2) 2000–2019
IMIG_st		
EARN_st	−0.315 ***	−0.0525
	(0.0761)	(0.0725)
EDU_T_st	0.326 ***	0.0526
	(0.0785)	(0.0642)
UR_F_st	−0.396 ***	−0.409 ***
	(0.0672)	(0.0774)
KOF_T_st	−0.724 ***	−0.747 ***
	(0.0529)	(0.0586)
_cons	−0.000000410	−0.0371
	(0.0513)	(0.0652)
ER_st		
IMIG_st	−0.180 *	−0.0251
	(0.0729)	(0.0576)
ASYL_st	0.159 *	0.0897 **
	(0.0698)	(0.0307)
ALMPs_st	0.534 ***	0.511 ***
	(0.0724)	(0.0587)
PLMPs_st	−0.527 ***	−0.508 ***
	(0.0702)	(0.0594)
_cons	−0.000000641	−0.0562
	(0.0610)	(0.0583)
ASYL_st		
KOF_T_st	−0.459 ***	−1.057 ***
	(0.0801)	(0.134)
POV_r_st	−0.187 *	−0.533 ***
	(0.0762)	(0.131)
LE_st	−0.0494	0.0758
	(0.0767)	(0.117)
_cons	−0.000000782	0.329 *
	(0.0714)	(0.134)
GDP_cap_st		
ER_st	0.553 ***	0.534 ***
	(0.0659)	(0.0595)
_cons	-2.09×10^{-8}	−0.118
	(0.0657)	(0.0611)
var(e.IMIG_st)		
_cons	0.422 ***	0.773 ***
	(0.0471)	(0.0773)
var(e.ER_st)		
_cons	0.595 ***	0.625 ***
	(0.0665)	(0.0625)
var(e.ASYL_st)		
_cons	0.817 ***	3.280 ***
	(0.0913)	(0.328)
var(e.GDP_cap_st)		
_cons	0.690 ***	0.746 ***
	(0.0771)	(0.0746)
N	160	200

Note: Standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Source: authors' research.

Table 4. Results of the SEM models developed for the comprehensive analysis of the immigration shaping factors and their economic consequences upon host countries—Total Effects upon GDP per capita (dependent variable).

Total Effects upon GDP per Capita (Dependent Variable)				
	2000−2015		2000−2019	
GDP_cap	Coefficients (Standard Errors)	$p > \|z\|$	Coefficients (Standard Errors)	$p > \|z\|$
IMIG	−0.0996631 (0.0403125)	0.013	−0.0133878 (0.030773)	0.664
ASYL	0.5529924 (0.0385967)	0.023	0.0478807 (0.0163852)	0.003
ER	0.0880277 (0.0658692)	0.000	0.5339114 (0.0595118)	0.000
UR_F	0.0394546 (0.0179352)	0.028	0.0054691 (0.0126287)	0.665
ALMPs	0.2954118 (0.0533060)	0.000	0.2725724 (0.0436363)	0.000
PLMPs	−0.2914527 (0.0520867)	0.000	−0.2713988 (0.0438204)	0.000
EARN	0.0313455 (0.015237)	0.040	0.0007027 (0.0018859)	0.709
EDU_T	−0.0324626 (0.0157682)	0.040	−0.0007038 (0.0018335)	0.701
KOF_T	0.0317336 (0.0294489)	0.281	−0.0406289 (0.0226649)	0.073
POV_R	−0.0164723 (0.0100517)	0.101	−0.025515 (0.0111169)	0.022
LE	−0.004345 (0.0070383)	0.537	0.003631 (0.005732)	0.526

Source: authors' research.

The negative coefficients associated with the KOF variable accounting for globalization (2000–2019) tends to highlight that, nowadays, international migration represents a major frontier of the globalization process. ALMPs and migration flows are jointly significant in positively influencing the employment rate, with further positive effects on living standards and economic welfare of the population residing in the ten countries considered. ***Thus, H4 is reconfirmed and fulfilled***.

5. Concluding Remarks

Employment moves from one country to another lead to changes in the economic conditions for both the origin and destination countries. The empirical analysis performed in this context pursued the development of complex methods to evaluate the effects induced by the international migration (both economic and humanitarian) over the ten host-economies EU Member States that are primarily pursued by immigrants and asylum seekers, thus trying to answer the main questions and fears connected to migration. There was a keen interest in assessing the economic consequences of migratory flows form a two-fold perspective, focusing on its determinants and direct/indirect/total effects, to better capture and determine the most suitable ways to enhance migrants' roles in supporting long-term economic development.

Based on these investigations, we could observe that short-term and long-term impacts of migration, which may vary in magnitude, are extensively determined by labour and capital flexibility and the ability of labour markets to adjust to various changes in the short and longer term. In line with what the theory predicts, international migration, one of the main globalization vectors, generates complex economic and social consequences upon migrant sending and receiving countries. For the receiving countries, migration helps fill job vacancies and skills, support economic growth, and bring energy, innovation, and cultural diversity. These credentials are essential for sustainable economic development.

Our estimations highlighted that the labour immigrant flows have important positive economic consequences embedded by a series of major changes in the labour market performance both for the native workers and for the foreign population (employment and wage level increases, intensified earnings dispersion) and improved levels of GDP per capita and per person employed. As Ortega and Peri [52] underlined, the "international migration flows are highly responsive to income per capita at destination ... tightening of laws regulating immigrant entry reduce rapidly and significantly their flow" [52] (p. 47).

Overall, the analyses confirm the main economic effects of international migration in a globalised era, some of which have previously been highlighted in relevant published literature, but are comprehensively integrated in this paper. These effects refer to both positive and negative elements for migrant receiving countries, and they differ significantly from one country to another according to the specific measures and policies adopted to coordinate this extremely complex process.

The performed research is in line with the most recent initiatives launched globally, especially by the UN DESA and International Labor Organization (ILO) specialists, on the role of labour migration in achieving future sustainable development goals. They attest that "migration has the potential to lift millions out of poverty, provide access to decent work and foster sustainable development" and highlight that "greater efforts are required to strengthen the evidence-base on migration and development so that policies can be made in a more informed manner" [53] (p. 1).

Our research is not without limitations though, mainly induced by low data availability for longer time series that are accurate in revealing the amplitude of the migration phenomenon. These kinds of data limitations were also mentioned by other studies, for example, Soon [48]. Therefore, we intend to expand the immigration analysis to a bilateral matrix approach following the emigration–immigration–return migration axis, with a particular interest on brain drain–brain gain–brain waste coordinates, family members' component, and the effects of destination countries' entry laws for migrants, as Ortega and Peri [52] have previously proved.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Variables used in the empirical research endeavour.

Acronym	Description	Source
IMIG	Flows of immigrants and foreign population (number) The inflows include status changes, namely persons in the country on a temporary status who obtained the right to stay on a longer-term basis	OECD, Eurostat
ASYL	Inflows of asylum applicants (number, new asylum requests into OECD)	OECD, UNHCR
GDP_cap	Gross domestic product per capita (Euro)	UNCTADstat
GDP_emp	Gross domestic product per person employed (USD)	UNCTADstat
ER, ER_F	Employment rate (%)—total and for the foreign population (F)	Eurostat OECD

Table A1. *Cont.*

Acronym	Description	Source
UR, UR_F, UR_LT	Unemployment rate (%)—total, for the foreign population (F), long term (LT)	Eurostat OECD
ER_part	Part-time and temporary contracts employment rate (%)	Eurostat
EARN	Annual net earnings of a two-earner married couple with two children (Euro)	Eurostat
EARN_disp	Earnings dispersion (Decile 9/Decile 5)	Eurostat
ALMPs	Expenditures on active labour market policies (% of GDP)	Eurostat
PLMPs	Expenditures on passive labour market policies (% of GDP)	Eurostat
EDU_T	Educational level (both general and vocational) reflected through the educational attainment for tertiary education (levels 5–8)	Eurostat
EDU_part	The participation rate in education and training (%)	Eurostat
EARN	Annual net earnings of a two-earner married couple with two children (Euro) and earnings dispersion (Decile 9/Decile 5)	Eurostat, World Bank
POV_R	At-risk-of-poverty-rate (%)	Eurostat, World Bank
LE	Life expectancy at birth	Eurostat, World Bank
BERD	Business enterprise R&D expenditures for the business enterprise sector	Eurostat
Gini	Gini coefficients (index)	UNU WIDER
KOF_T	KOF index of Globalization (overall dimensions—economic, social, political)	ETH Zurich
KOF_E	KOF index of Economic Globalization	ETH Zurich
X	Exports of goods and services (mil. USD)	UNCTADstat
FDI_I	Inflows/inward of foreign direct investment (mil. USD)	UNCTADstat

Source: own process.

Table A2. Results of the spatial analysis autoregressive models developed for assessing the economic immigration shaping factors.

	(1)	(2)	(3)	(4)	(5)
	IMIG	IMIG	IMIG	IMIG	IMIG
GDP_cap	−0.169 *** (0.0405)				−0.134 *** (0.0326)
ER	0.221 *** (0.0577)				0.159 *** (0.0381)
POV_R	−0.185 * (0.0720)	−0.198 *** (0.0583)	−0.185 ** (0.0583)	−0.245 *** (0.0612)	
ALMPs	0.00425 (0.0366)				
Gini	0.355 *** (0.0826)	0.315 *** (0.0615)	0.328 *** (0.0641)	0.378 *** (0.0701)	
EDU_part	−0.127 *** (0.0386)	−0.0805 * (0.0318)	−0.1000 ** (0.0308)	−0.0672 ** (0.0245)	
KOF_E	−0.228 *** (0.0488)	−0.265 *** (0.0517)	−0.276 *** (0.0502)	−0.262 *** (0.0460)	−0.146 *** (0.0430)
GDP_emp		−0.128 *** (0.0341)	−0.158 *** (0.0348)	−0.118 *** (0.0319)	
ER_F		0.0590 (0.0428)			
LE		−0.145 *** (0.0317)	−0.117 ** (0.0381)	−0.128 *** (0.0317)	
UR_LT			−0.0937 * (0.0456)		

Table A2. *Cont.*

	(1)	(2)	(3)	(4)	(5)
	IMIG	**IMIG**	**IMIG**	**IMIG**	**IMIG**
ER_part				0.186 *** (0.0419)	
EARN				−0.128 * (0.0567)	
BERD					−0.149 *** (0.0429)
FDI_I					0.0994 ** (0.0338)
Export					0.259 *** (0.0602)
_cons	0.116 *** (0.0310)	0.116 *** (0.0304)	0.116 *** (0.0302)	0.116 *** (0.0293)	0.116 *** (0.0294)
rho _cons	0.983 *** (0.0169)	0.981 *** (0.0193)	0.981 *** (0.0188)	0.980 *** (0.0199)	0.982 *** (0.0183)
sigma _cons	0.391 *** (0.0330)	0.385 *** (0.0342)	0.382 *** (0.0332)	0.370 *** (0.0392)	0.369 *** (0.0411)
N	160	160	160	160	160

Note: Standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Source: authors' research.

Table A3. Results of the spatial analysis autoregressive models developed for assessing the shaping factors of asylum seekers inflows.

	(1)	(2)	(3)	(4)	(5)
	ASYL	**ASYL**	**ASYL**	**ASYL**	**ASYL**
GDP_cap	−0.155 * (0.0637)				−0.161 * (0.0627)
ER	0.252 (0.146)				0.225 * (0.0931)
POV_R	−0.0654 (0.114)	−0.242 * (0.121)	−0.102 (0.117)	−0.0890 (0.130)	
ALMPs	−0.192 ** (0.0599)				
Gini	−0.2000 (0.129)	0.0401 (0.137)	−0.0429 (0.133)	−0.0401 (0.141)	
EDU_part	0.0948 (0.0919)	0.181 *** (0.0432)	0.103 (0.0617)	0.0753 (0.0741)	
KOF_E	−0.543 *** (0.104)	−0.580 *** (0.106)	−0.572 *** (0.107)	−0.521 *** (0.0984)	−0.389 *** (0.105)
GDP_emp		−0.0562 (0.0570)	−0.0279 (0.0561)	−0.0624 (0.0752)	
ER_F		−0.134* (0.0600)			
LE		−0.127 (0.0844)	−0.0679 (0.0779)	−0.115 (0.0777)	
UR_LT			−0.148 * (0.0744)		

Table A3. *Cont.*

	(1)	(2)	(3)	(4)	(5)
	ASYL	**ASYL**	**ASYL**	**ASYL**	**ASYL**
ER_part				0.284 ** (0.100)	
EARN				−0.0130 (0.129)	
BERD					0.200 * (0.0841)
FDI_I					0.0119 (0.0839)
Export					0.149 (0.173)
_cons	0.0301 (0.0576)	0.0320 (0.0588)	0.0324 (0.0589)	0.0316 (0.0568)	0.0317 (0.0576)
rho _cons	0.655 ** (0.222)	0.695 ** (0.223)	0.705 ** (0.214)	0.686 ** (0.233)	0.689 ** (0.239)
sigma _cons	0.777 *** (0.117)	0.796 *** (0.130)	0.796 *** (0.124)	0.764 *** (0.118)	0.771 *** (0.106)
N	160	160	160	160	160

Note: Standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Source: authors' research.

Table A4. Descriptive statistics of the indicators used within the empirical analysis.

Summary Statistics for the 2000–2015 Sample					
	N	**Mean**	**sd**	**Min**	**Max**
IMIG	160	279,129.1	245,104.4	16,895	1,077,073
ASYL	160	29,641.19	31,141.13	1405	236,560
GDP_cap	160	34,920.47	10,571.99	15,600	64,161.97
GDP_emp	160	64,445.91	21,031.75	38,095	99,363.52
ER	160	66.84938	6.167076	53.7	77.9
ER_F	160	60.86875	5.428555	45.2	70.4
ER_part	160	19.4975	5.363163	7.8	27.8
UR	160	7.26875	1.830668	3.4	13.3
UR_F	160	13.55687	5.575955	6.4	35.4
UR_LT	160	2.914375	2.188416	0.5	13
EARN	160	51,394.2	10,763.12	28,412	78,469
EARN_disp	160	1.798344	0.1598316	1.53	2.18
ALMPs	160	0.6595312	0.3545553	0.035	1.691
PLMPs	160	1.400006	0.6521332	0.1280001	3.053
EDU_T	160	24.7125	6.534598	8.1	37.6
EDU_part	160	18.18437	12.47486	−6.7	95.3
POV_R	160	20.7025	4.511843	9.1	30.29999
LE	160	80.26188	1.629672	76.2	84.59999
BERD	160	1.264187	0.6095655	0.38	2.985
Gini	160	28.49375	3.314745	20.6	35.7
KOF_T	160	85.50588	4.091352	77.18001	92.63
KOF_E	160	78.7805	8.745086	60.19999	94.8
X	160	439,763.1	392,694.6	52,077.39	1,849,760
FDI_I	160	27,102.96	33,621.13	−12,272.31	198,276.5

Table A4. *Cont.*

Summary Statistics for the 2000–2019 Sample					
	N	**Mean**	**Sd**	**Min**	**Max**
IMIG	200	305,259.6	308,797.9	16,895	1,845,793
ASYL	200	48,116.55	67,278.9	1405	490,520
GDP_cap	200	33,923.33	10,840.04	8735.141	64,161.97
GDP_emp	200	64,963.97	21,269.74	38,095	102,240.9
ER	200	67.1235	6.344435	53.7	77.9
ER_F	200	61.071	5.591304	45.2	74.4
ER_part	200	20.063	5.384281	7.8	31.4
UR	200	7.401	2.238156	2.100001	15.7
UR_F	200	13.6625	5.508645	3.600001	35.4
UR_LT	200	2.9775	2.196558	−0.8000001	13
EARN	200	54,223.53	13,303.79	28,412	113,749
EARN_disp	200	1.783075	0.1683348	1.32	2.18
ALMPs	200	0.663075	0.3801446	0.035	1.973
PLMPs	200	1.342235	0.6662019	−0.0039999	3.053
EDU_T	200	26.62	8.937471	8.1	75.89999
EDU_part	200	18.4625	11.81902	−6.7	95.3
POV_R	200	20.49	4.646142	9.1	30.30001
LE	200	80.8375	2.011485	76.2	87.39998
BERD	200	1.28585	0.5970249	0.38	2.985
Gini	200	28.85	3.588049	20.6	39.7
KOF_T	200	84.6848	4.524084	74.94002	92.63
KOF_E	200	76.4758	10.08743	49.08002	94.8
X	200	419,140.9	380,639.2	13,830.83	1,849,760
FDI_I	200	28,915.08	40,379.77	−45,351.04	198,276.5

Source: own process in Stata.

Table A5. (**a**) Unit Root Tests of the Residuals from the GDP-Trade-FDI Impact Models, 2000–2015. (**b**) Unit Root Tests of the Residuals from the GDP-Trade-FDI Impact Models, 2000−2019.

(a)		
	Resid	
LLC (Levin-Lin-Chu)	*p*-value	0.0021
	t-statistic	−2.8573
	ADF (Augmented Dickey-Fuller) regressions: 1 lag	
	LR (Likelihood Ratio) variance: Bartlett kernel, 8.00 lags average	
Im-Pesaran-Shin	*p*-value	0.3648
	t-statistic	−1.695
	Test critical values: 1%	−2.210
	Test critical values: 5%	−1.990
	Test critical values: 10%	−1.890
	ADF regressions: No lags included	
	AR (Autoregressive) parameter: Panel-specific	
Harris-Tzavalis	*p*-value	0.4693
	Statistic	0.8191
	Z	−0.0771
Fisher-type Based on Augmented Dickey-Fuller tests	*p*-value	0.05930
	Inverse chi-squared (56)	30.6959
	Modified inv. chi-squared	1.6912

Table A5. *Cont.*

(b)		
	Resid	
LLC (Levin-Lin-Chu)	p-value	0.3872
	t-statistic	−0.2866
	ADF regressions: 1 lag	
	LR variance: Bartlett kernel, 8.00 lags average	
Im-Pesaran-Shin	p-value	0.9957
	t-statistic	2.6264
	Test critical values: 1%	−2.210
	Test critical values: 5%	−1.990
	Test critical values: 10%	−1.890
	ADF regressions: No lags included	
	AR (Autoregressive) parameter: Panel-specific	
Harris-Tzavalis	p-value	0.9990
	Statistic	1.0020
	Z	3.0961
Fisher-type Based on Augmented Dickey-Fuller tests	p-value	0.0451
	Inverse chi-squared (56)	31.8336
	Modified inv. chi-squared	1.8711

Ho: (All) Panels contain unit roots. Ha: Panels are stationary/At least one panel is stationary. Source: authors' research.

Table A6. (**a**) Results for Cronbach's alpha, 2000–2015; (**b**) Results for Cronbach's alpha, 2000–2019.

(a)						
Test Scale = Mean (Standardized Items)						
Average						
Item	**Obs**	**Sign**	**Item-Test Correlation**	**Item-Rest Correlation**	**Inter-Item Correlation**	**Alpha**
GDP_cap	160	+	0.7627	0.6777	0.1532	0.6656
IMIG	160	−	0.5503	0.4175	0.1764	0.7020
ASYL	160	−	0.2058	0.0400	0.2140	0.7496
EARN	160	+	0.6540	0.5416	0.1651	0.6850
EDU_T	160	+	0.4473	0.2994	0.1876	0.7176
UR_F	160	−	0.3350	0.1759	0.1999	0.7332
KOF_T	160	+	0.6171	0.4968	0.1691	0.6912
POV_R	160	−	0.6322	0.5151	0.1674	0.6887
LE	160	−	0.3732	0.2173	0.1957	0.7280
ER	160	+	0.8228	0.7559	0.1467	0.6540
ALMPs	160	+	0.4696	0.3245	0.1852	0.7143
PLMPs	160	−	0.1306	−0.0363	0.2222	0.7586
			Total scale		0.1819	0.7273
(b)						
Test Scale = Mean (Standardized Items)						
Average						
Item	**Obs**	**Sign**	**Item-Test Correlation**	**Item-Rest Correlation**	**Inter-Item Correlation**	**Alpha**
GDP_cap	200	+	0.6820	0.5729	0.1480	0.6565
IMIG	200	−	0.4084	0.2519	0.1771	0.7031
ASYL	200	−	0.2943	0.1281	0.1893	0.7198
EARN	200	+	0.5613	0.4267	0.1609	0.6783
EDU_T	200	+	0.4229	0.2680	0.1756	0.7009
UR_F	200	−	0.3605	0.1992	0.1822	0.7103
KOF_T	200	+	0.5877	0.4580	0.1581	0.6737
POV_R	200	−	0.6358	0.5160	0.1529	0.6651
LE	200	−	0.3878	0.2291	0.1793	0.7062
ER	200	+	0.7928	0.7142	0.1362	0.6344
ALMPs	200	+	0.5091	0.3657	0.1664	0.6871
PLMPs	200	−	0.2113	0.0414	0.1981	0.7310
			Total scale		0.1687	0.7089

Source: authors' research.

Table A7. Wald tests for equations.

Variable	Chi2	df	*p*-Value	Chi2	df	*p*-Value
	GDP_cap 2000–2015			GDP_cap 2000–2019		
	Observed					
IMIG	217.21	4	0.0000	208.51	4	0.0000
ER	107.40	4	0.0000	136.73	4	0.0000
ASYL	34.70	3	0.0000	83.22	3	0.0000
GDP_cap	70.48	1	0.0000	80.49	1	0.0000

H0: all coefficients excluding the intercepts are 0. We can thus reject that null hypothesis for each equation. Source: authors' research.

Table A8. (**a**) Goodness-of-fit tests for SEM models, 2000–2015; (**b**) Goodness-of-fit tests for SEM models, 2000–2019.

	(a)	
Fit Statistic	**Value**	**Description**
Likelihood ratio		
chi2_ms(26)	438.896	model vs. saturated
$p >$ chi2	0.000	
chi2_bs(38)	748.095	baseline vs. saturated
$p >$ chi2	0.000	
Information criteria		
AIC	4697.528	Akaike's information criterion
BIC	4759.031	Bayesian information criterion
Baseline comparison		
CFI	0.419	Comparative fit index
TLI	0.150	Tucker-Lewis index
Size of residuals		
SRMR	0.146	Standardized root mean squared residual
CD	0.754	Coefficient of determination

	(b)	
Fit Statistic	**Value**	**Description**
Likelihood ratio		
chi2_ms(26)	344.142	model vs. saturated
$p >$ chi2	0.000	
chi2_bs(38)	748.398	baseline vs. saturated
$p >$ chi2	0.000	
Information criteria		
AIC	6686.990	Akaike's information criterion
BIC	6752.957	Bayesian information criterion
Baseline comparison		
CFI	0.539	Comparative fit index
TLI	0.327	Tucker-Lewis index
Size of residuals		
SRMR	0.118	Standardized root mean squared residual
CD	0.764	Coefficient of determination

Source: authors' research.

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