

LABOR MIGRATION IN THE CONTEXT OF SUSTAINABLE REGIONAL DEVELOPMENT

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Purpose: Labor migration plays a crucial role in shaping regional economies and social structures, particularly in the context of sustainable development. Understanding the relationship between migration flows and regional sustainability is essential for addressing economic disparities, labor market dynamics, and environmental concerns. This paper examines how labor migration is explored in academic research within the framework of sustainable regional development.

Design/methodology/approach: The study employs bibliometric analysis to examine labor migration research within the framework of sustainable regional development. The analysis is based on data retrieved from the Web of Science and Scopus databases, without time restriction. A structured literature review was conducted, and quantitative results were visualized using bibliometric maps generated in VOSviewer. This approach enables the identification of key connections between labor migration and sustainable regional development research.

Findings: The study highlights the evolving research trends in labor migration and sustainable regional development. It identifies the most recent and influential areas explored by the academic community, shedding light on the dominant themes and gaps in the literature.

Originality/value: The article contributes to the understanding of how labor migration is studied in relation to sustainable regional development, offering a comprehensive bibliometric overview. The findings provide valuable insights for researchers, policymakers, and practitioners interested in migration policies and regional sustainability strategies.

Keywords: sustainable development, labor migration, regional development, economic integration.

Category of the paper: Literature review.

1. Introduction

Labor migration has long been a key factor in shaping regional economies and social structures, influencing both economic growth and demographic change (Castles, 2010; Martin,

2022). As globalization accelerates and economic disparities persist, the movement of workers across regions and borders plays a critical role in labor market dynamics, regional development, and socio-economic sustainability. The study of labor migration is particularly relevant in the face of contemporary challenges such as technological shifts, demographic aging, and policy transformations that affect both sending and receiving regions (Harris, Todaro, 1970; Massey et al., 1993). Understanding these dynamics is essential for designing policies that promote balanced regional development while addressing issues related to workforce shortages, integration, and economic resilience.

This study provides an overview of the literature on labor migration and regional development. Using a systematic review approach, it evaluates recent trends, key subject areas, and the most commonly used terms in research publications from Web of Science (WoS) and Scopus databases. The focus of this paper is to address research questions related to current academic discussions, emerging themes, and conceptual frameworks in labor migration and regional development. Furthermore, the study examines how migration patterns contribute to economic restructuring, employment distribution, and spatial inequalities within regions.

The primary aim of this study is to map out the growing body of literature on labor migration and regional development by analyzing research within commercial databases of texts described as high quality. By doing so, this study identifies the key topics and geographical regions that have been central to scholarly discussions in recent decades. The increasing attention to labor migration has been shaped by major global events, such as the European Union's labor mobility policies, the impact of automation on employment structures, and the post-pandemic recovery of labor markets. Additionally, the paper explores how labor migration has been influenced by geopolitical shifts, including Brexit, the expansion of international trade agreements, and regional labor shortages.

This systematic review aims to assess the key trends in academic literature on these interconnected topics and to identify gaps in research, particularly regarding the long-term impacts of labor migration on regional development. While research on labor mobility has expanded, certain critical aspects—such as the effects of labor outflows on sending regions, the sustainability of remittance-dependent economies, and the integration of migrant workers into host communities—remain underexplored. The study also highlights the shifting focus of migration studies, with increasing attention to themes such as "circular migration", "brain drain", and "regional labor market mismatches" in response to contemporary labor mobility challenges.

Several scholars have examined the complex relationship between labor migration and regional development. Piore (1979) and Sassen (2013) explored the role of migration in dual labor markets, emphasizing how migrant workers often fill low-wage and temporary positions in host economies. More recent works Van Hear, N., Bakewell, O., & Long, K. (2020), Lagakos (2020), de Haas (2021), Tipayalai (2020) and Fu & Gabriel (2012) have analyzed migration as part of broader global economic structures, showing its influence on economic inequality, labor

policies, and regional sustainability. These studies suggest that labor migration presents both opportunities and challenges for host regions, depending on economic policies, labor demand, and social integration mechanisms.

Despite the growing body of literature on labor migration and regional development, research gaps remain, particularly regarding the long-term sustainability of migration-driven regional economies. Scholars such as Rodríguez-Pose (2018) and Kone & Özden (2017) have argued that while migration can enhance regional economic performance, these benefits are often contingent on governance frameworks and local institutional capacities. Moreover, while much research has focused on European and North American labor migration, emerging patterns in Africa, Latin America, and Southeast Asia remain underrepresented in academic discourse.

In addition to addressing these gaps, this paper builds on recent discussions by scholars such as Anderson et al. (2021), Khanna (2020), Newland, K. (2020), McAuliffe & Triandafyllidou (2021), who highlighted how the COVID-19 pandemic reshaped labor mobility patterns and introduced new challenges related to remote work, digital migration governance, and health security in labor markets. The research further explores how economic crises, automation, and climate change are shaping contemporary labor migration trends, leading to shifts in regional development strategies.

Using WoS and Scopus data, this paper examines key research questions related to the evolving discourse on labor migration and regional development. It highlights how global economic changes, labor market restructuring, and policy interventions influence migration flows, workforce distribution, and regional growth patterns. The findings of this study contribute to the growing body of literature on labor migration by providing a comprehensive bibliometric analysis of the field. Moreover, the study offers valuable insights for policymakers, labor market analysts, and regional development practitioners seeking to align migration policies with sustainable development goals. By synthesizing current research and identifying gaps in the literature, this paper aims to provide a foundation for future studies and policy recommendations that enhance the positive impacts of labor migration on regional economies.

2. Material and methods

The topic of migration has been analyzed by the authors from three perspectives: crisis, sustainable development, and resilience. This paper is the second of three parts that delve deeper into the issue of migration, exploring its complexities and multifaceted nature. Together, these perspectives offer a holistic view of migration as a dynamic and evolving phenomenon. By examining migration through these lenses, the authors aim to provide a comprehensive understanding of its causes, consequences, and potential solutions. The crisis perspective

highlights the urgent challenges and humanitarian aspects like refugee migration, the sustainable development approach focuses on long-term strategies for integration and economic impact, while the resilience framework examines how individuals and societies adapt to migration-related changes.

A systematic literature review (SLR) is using systematic and transparent procedures to identify, select and critically appraise research that meets explicit prespecified eligibility (Villar, 2022). The study involves conducting a bibliometric analysis, treated as popular and rigorous method for exploring and analyzing large volumes of scientific data (Donthu et al., 2021). It is a method of quantitative research based on academic publications as a data source. Its application is the better understanding of how research is produced, organized, and interrelated (UCSF Library, 2023). Using the VOSviewer, link analysis was worked on. It enabled the presentation of a visual network of connected entities as nodes and links (Cambridge Intelligence, 2023).

The study consisted of three stages. The first was related to the preparation of a group of inquiries regarding the issues of labor migration and sustainable regional development, such as: „wage migration” AND „regional development”, „wage migration” AND „sustainable development”, „wage migration” AND „economic growth”, „wage migration” AND „socio-economic development”, “economic migration” AND „regional development”, “economic migration” AND „sustainable development”, “economic migration” AND „economic growth”, “economic migration” AND „socio-economic development”, “labor migration” AND „regional development”, “labor migration” AND „sustainable development”, “labor migration” AND „economic growth”, “labor migration” AND „socio-economic development”, “labour migration” AND „regional development”, “labour migration” AND „sustainable development”, “labour migration” AND „economic growth”, “labour migration” AND „socio-economic development”. These queries were entered separately into the Web of Science (WoS) and Scopus databases. Files in Tab-delimited format were downloaded from WoS, and in CSV (Excel) format from Scopus. As a result, a total number of 1,161 documents was obtained (338 for WoS and 823 for Scopus, respectively). No time limit was applied under the inclusion and exclusion criteria.

As part of the WoS database - 1/3 of the texts were open access. Among the Web of Sciences categories dominated: economics, business, management, demography, and environmental studies. The texts came mostly from China, the USA, and Russia. More than 8 out of 10 indexed texts were written in English. As part of the Scopus database, over 2/3 of the texts were open access. The main subject areas include social sciences; economics, econometrics and finance; environmental science, and arts and humanities. The documents most often came from the USA, United Kingdom, China and Russian Federation and, as in the case of WoS, the dominant language of publication was English (9 out of 10 texts).

In the second stage, duplicate documents were removed in each database separately, resulting in a total number of 717 documents through negative selection (314 for WoS and 403

for Scopus, respectively). The structured literature review process and the quantitative results obtained after two stages of selection are presented in Figure 1.

In the third stage, the analysis of these texts was undertaken separately for each database, using the software tool for constructing and visualizing bibliometric networks - the VOSviewer program. The visualizing Network identified the key threads in the documents developed so far within the selected issue and is useful, among others, to determine directions for further research (Hamidah et al., 2020).

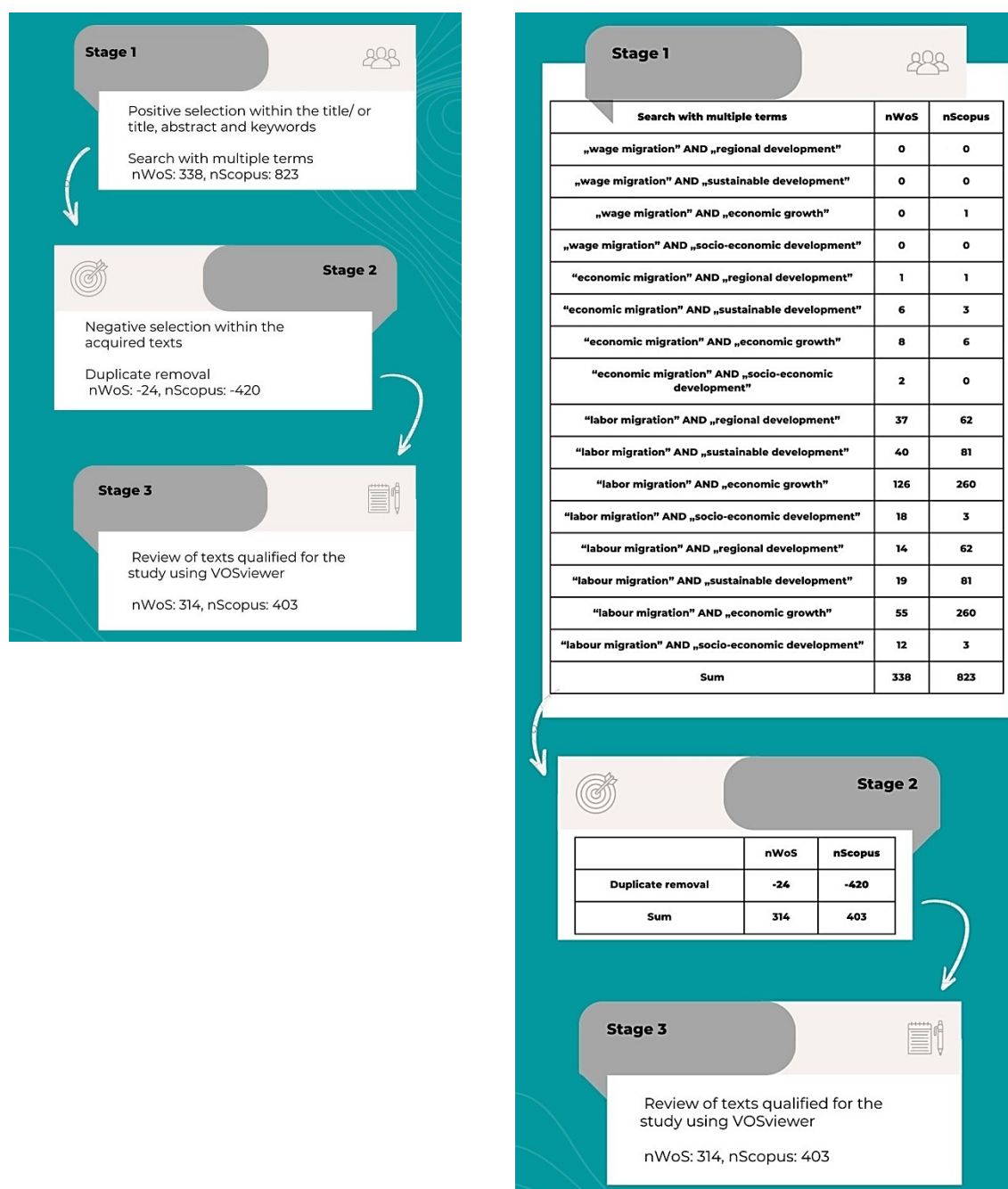


Figure 1. A structured literature review process and quantitative SLR results.

Source: own elaboration.

In summary, by using the watchwords listed above, 338 texts were obtained from the WoS database and 823 from Scopus. A total of 24 duplicates from WoS and 420 from Scopus were removed, resulting in 314 texts in the WoS database and 403 in the Scopus database.

3. Results

3.1. Web of Science

Among the 314 publications meeting our criteria, materials devoted to the researched topic appeared in print in the years 1966-2022. Among them, articles in journals (260 texts) and articles presented at scientific conferences (48 texts) prevailed. In addition, 4 books and 2 book series were indexed. During this period, the number of publications indexed in WoS increased. In 1966, 3 documents were published, in 2008 - 8 documents, in 2021 - 36 texts. In 2022, less materials were indexed than in 2022, however, compared to 1966, the publication increase was still significant. Detailed data is presented in Figure 2.

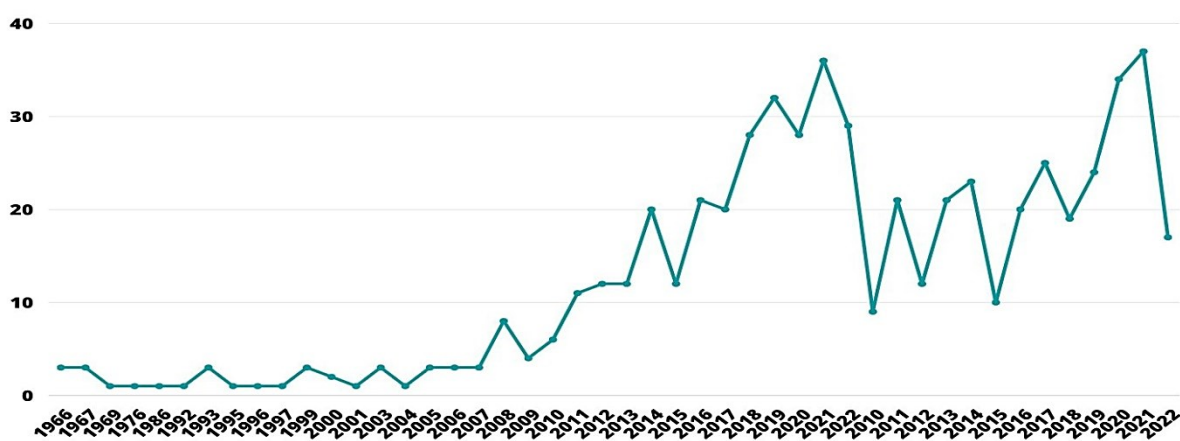


Figure 2. Number of publications indexed in WoS within the researched area (1966-2022).

Source: own elaboration.

As part of the WoS database, in VOSviewer it is possible to analyze data obtained from publication titles. The full counting method was specified and the maximum number 3 of occurrence of a term was marked. Of the 949 terms, 70 met the threshold. As a result, 7 sets of closely related nodes were created - thematic clusters: 1 – red, containing 17 items (in which the most common are: *migration*, *change*, *region*, *implication*, *policy*, and *international migration*); 2 – green with 12 items (respectively: *impact*, *labour migration*, *factor*, *regional development*, and *European Union*); 3 – dark blue with 11 items (among others: *country*, *economy*, and *context*); 4 – yellow with 10 items (among others: *China*, *effect*, *evidence*, and *labour*); 5 – purple with 8 items (among others: *development*, *case*, *education*,

and *economic development*); 6 – light blue with 6 items (among others: *labor migration*, *economic growth*, *Friedlander* - topic of *Puerto Rico labor migration* by Stanley L. Friedlander, and *case study*); and 7 – orange with 5 items (among others: *immigration*, *growth*, and *migration policy*). Each node represents an entity – a watchword. Its size indicates the occurrence of the watchword – the multiple occurrence. Within a given cluster there is a close relationship between items. Whereas the link between two nodes represents the co-occurrence between keywords (Donthu et al., 2021). Figure 3 shows clusters in each of the topic areas studied.

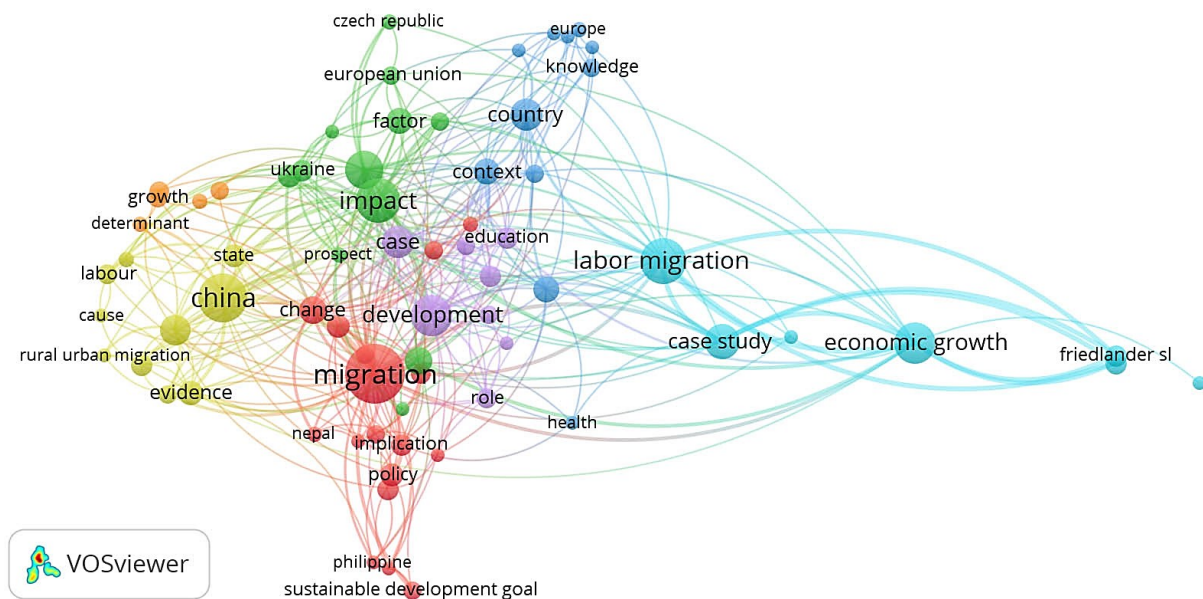


Figure 3. Network visualization based on WoS data.

Source: own elaboration.

The most frequently mentioned countries include: China, Czech Republic, Philippines, Austria, Nepal, Russia; among parts of the continent - Sub Saharian Africa; among the continents – Europe, and among the economic and political unions - the European Union. Within them, the most frequently discussed issues are those related to China and: *labor/labour migration*, *economic development*, *economic growth*, *consequences*, *determinant*, *policy*, and *rural-urban migration*, elements belonging to different clusters (Figure 4a-d).

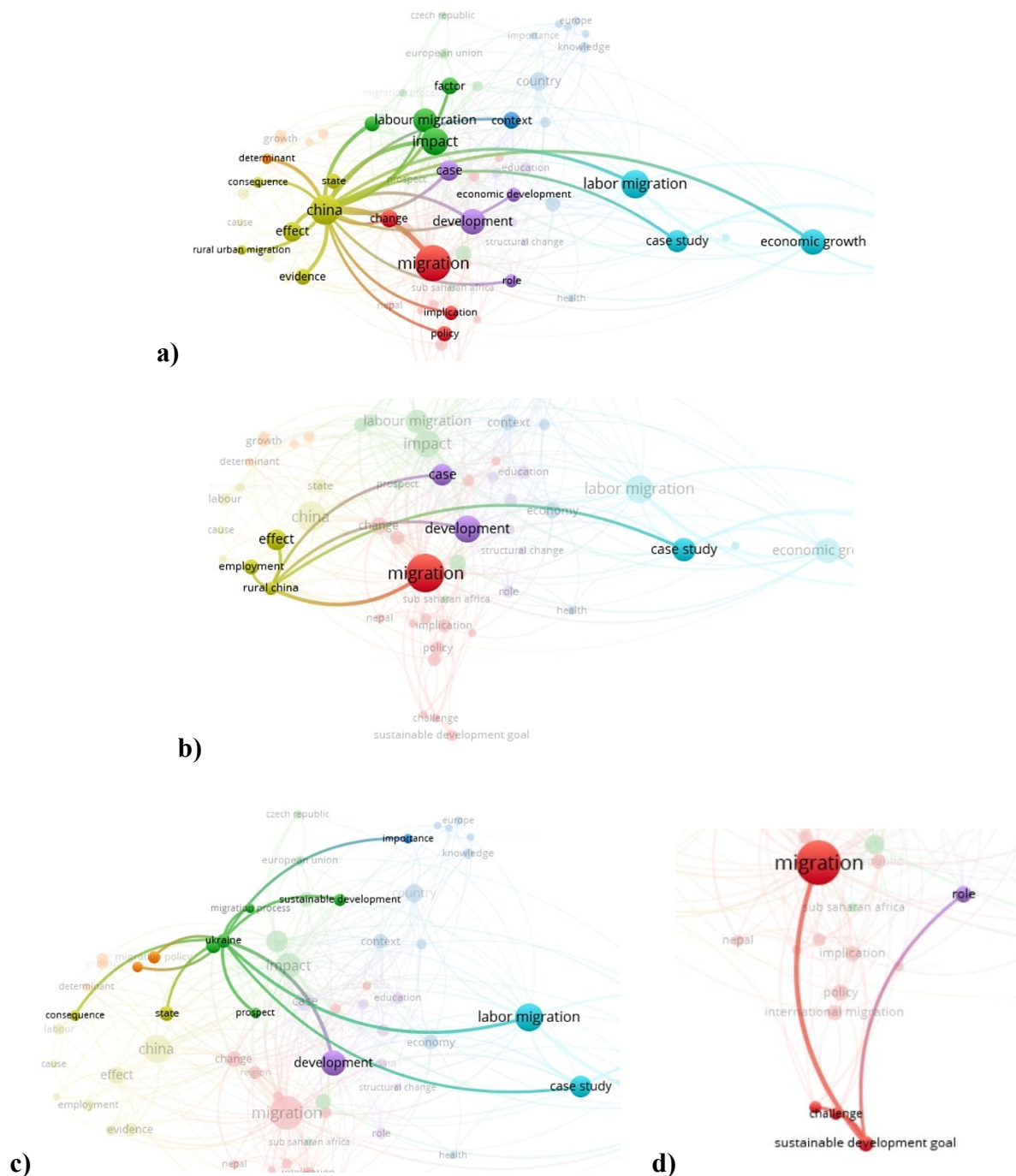


Figure 4a-d. Relationships between items: 4a. *China*, and 4b. *rural China* 4c. *Ukraine*, 4d. *sustainable development goals*, and other items selected for the study based on WoS.

Source: own elaboration in VOSviewer program.

The latest publications, i.e. those appearing in print after 2020, include those containing the following items in their titles: *Ukraine* and *sustainable development goal* (marked in yellow in Figure 5). The first one is described in relation with items such as: *labor migration*, *consequences*, *importance*, *migration process*, *prospects*, and *migration policy* (Figure 4c). Sustainable development goals in the publication are considered, among others, with *challenge* and *role* (Figure 4d). The oldest publications, appearing in print around 2010, are related to the items: *international labor migration*, *economic growth*, *regional development*, *convergence*,

and *Friedlander*. They are marked in purple in Figure 5, which shows the developments over time. Among the issues best researched are the following items: *China*, *impact*, *migration*, *labour migration*, *economic growth*, and *development*, which in Figure 6 having the highest density. The more concentrated the colors are, the brighter they are, the more research is devoted to the item.

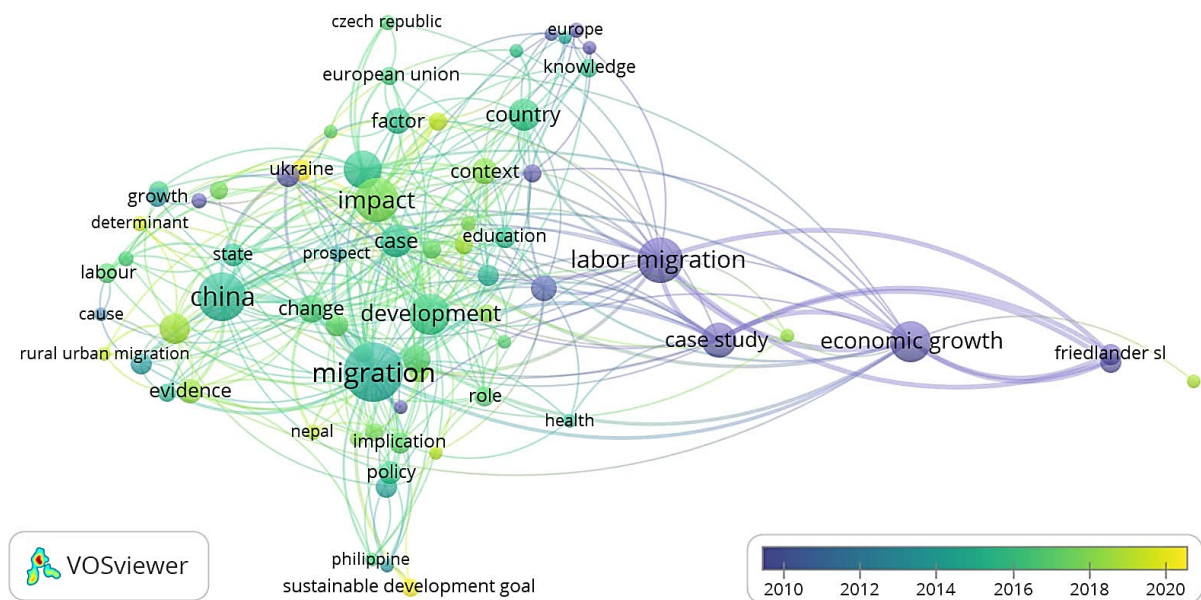


Figure 5. Overlay visualization based on WoS data.

Source: own elaboration.

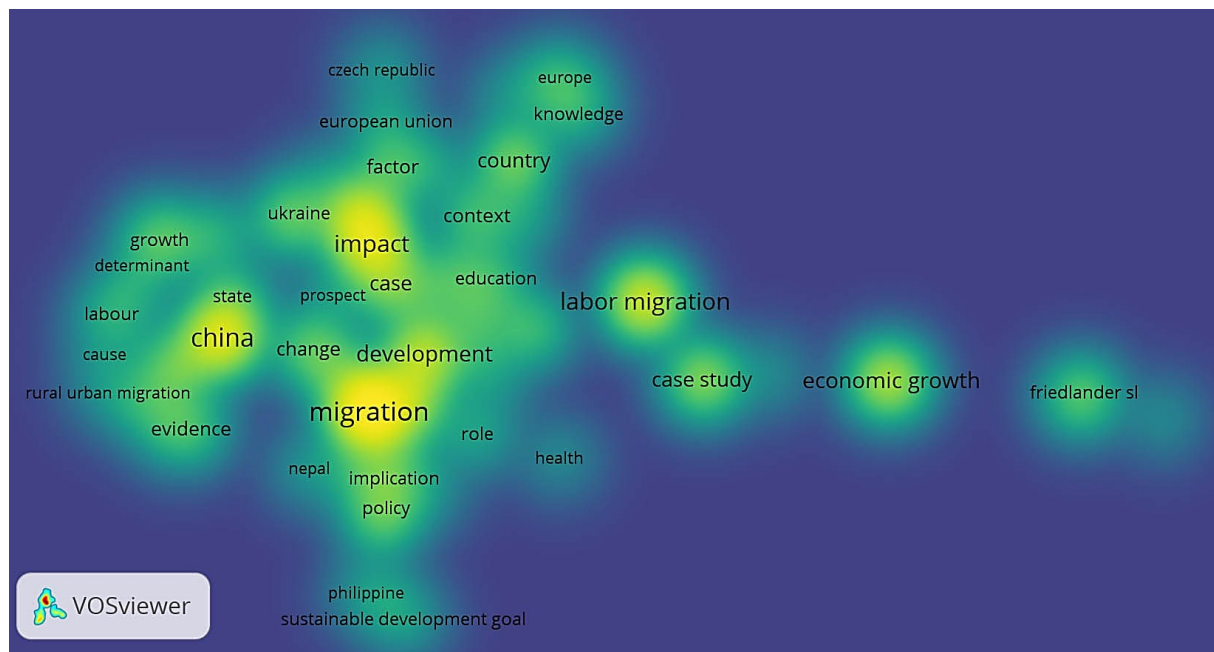


Figure 6. Density visualization based on WoS data.

Source: own elaboration.

3.2. Scopus

Among the 403 publications meeting our criteria, the indexed documents come from the years 1964-2023 (January). Most of them were indexed as journal articles - 328, book chapters - 31, conference papers - 24, and books - 5, the remaining 15 included among others reviews.

As in the case of the WoS database, the number of publications indexed in Scopus devoted to the researched issues increases over time. One publication from 1964 was indexed, in 2008 - 13, and in 2021 - 37 documents. In 2022, fewer publications were indexed than the year before, but compared to 1964, the increase in publications is still significant. Detailed data is presented in Figure 7.

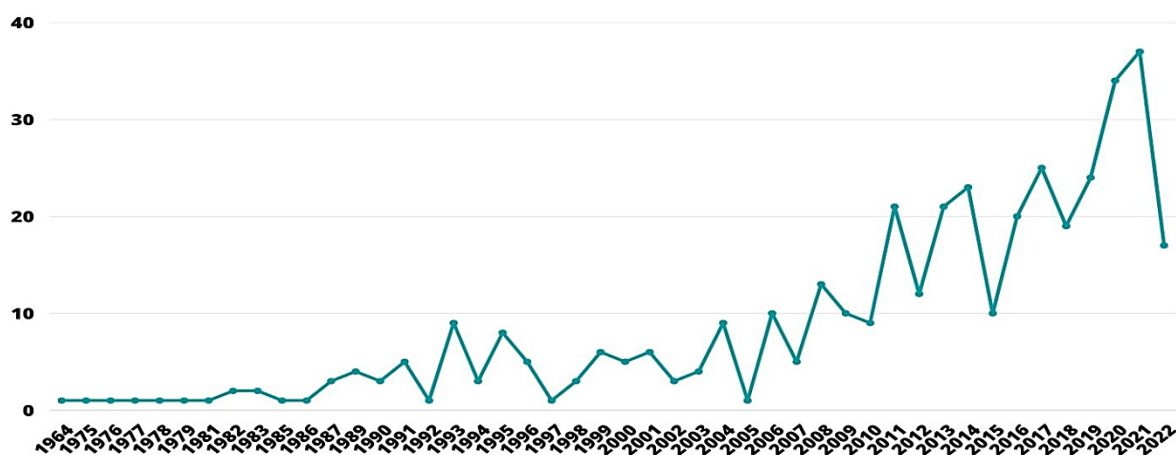


Figure 7. Number of publications indexed in Scopus within the researched area (1964-2022).

Source: own elaboration¹.

As part of the data obtained from this database, in VOSviewer it was also possible to check the co-authorship. The minimum number of document of an author has been marked as 3. Of the 750 authors, 9 meet the thresholds. Among them, Aderanti Adepoju was the most often quoted. Among the people who most often cooperate with each other are: Liu Jianguo, Yang Hongbo and Zhang Jindong, as indicated by a total link strength of 6 (Table 1).

¹ For the clarity of the figure, the data from January 2003, which at the time of the study was 1 document, was omitted.

Table 1.*Co-authorship within the scope of the Scopus database*

Author	Documents	Citations	Total link strength
Adepoju A	3	117	0
Chiu M.M.	3	6	0
Claeyssen J.C.R.	3	20	3
Holliday J.	3	33	0
Juchem Neto J.P.	3	20	3
Liu J.	3	25	6
Martin P.	3	92	0
Yang H.	3	25	6
Zhang J.	3	25	6

Source: own elaboration.

As part of the Scopus database, in VOSviewer it is possible to analyze the titles, abstracts and keywords of documents. The method of full counting was specified and the maximum number of occurrence of a term as 15 was marked. Of the 9960 terms, 196 met the threshold. As a result of the study, 8 clusters were created: 1 – red with 57 items (in which the most common are: *impact*, *study*, *worker*, and *labour migration*); 2 – green with 39 items (respectively: *country*, *region*, *development*, and *labor migration*); 3 – dark blue with 26 items (among others: *migration*, *policy*, *migrant*, and *population*); 4 – yellow with 20 items (among others: *China*, *economic growth*, *change*, and *city*); 5 – purple with 18 items (among others: *economy*, *growth*, and *factor*); 6 – light blue with 17 items (among others: *remittance*, *income*, and *Mexico*); 7 – orange with 12 items (among others: *immigration*, *effect*, *state*, and *labour market*); and 8 – light pink with 7 items (among others: *model*, *system*, *strategy*, and *analysis*). They are presented in Figure 8. The most frequently raised issues include: *migration*, *country*, *labour migration*, *region*, *development*, *economy*, and *China*. The most frequently mentioned countries include: China, Japan, Thailand, Indonesia, Nepal, Philippine, Sinagapore, Canada, Mexico, Turkey, Russia, Germany, Ireland, United Kingdom; among the continents - Asia (and within its framework Southeast Asia), Europe, Africa; and among international integration groups - European Union.

The density map (Figure 10) shows that the best explored areas are those related to items: *migration*, *country*, *region*, *development*, *economic growth*, and *China*. Less marked items indicate less researched areas, and thus directions for further research conducted in this topic.

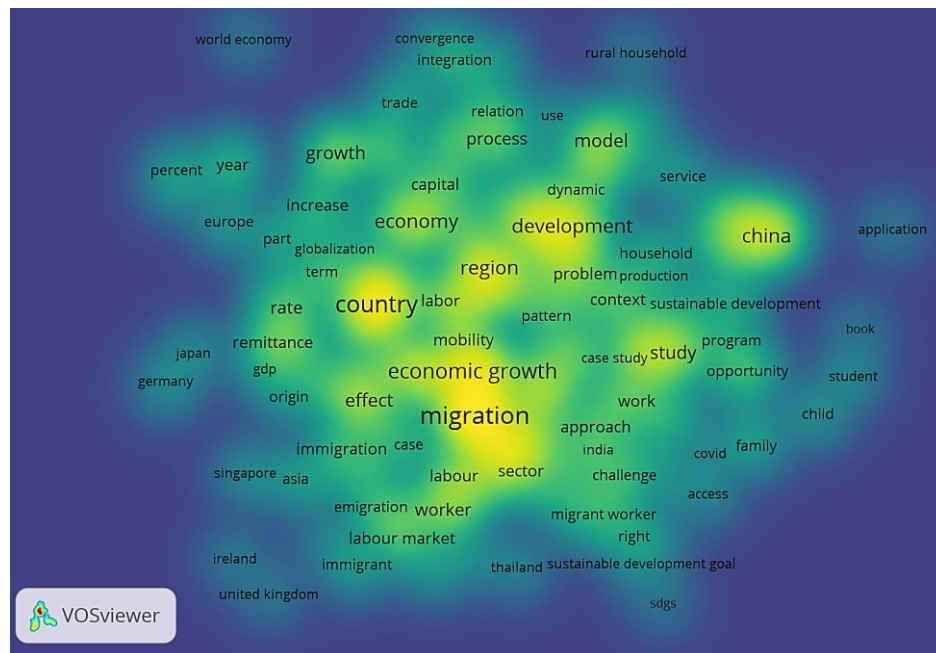
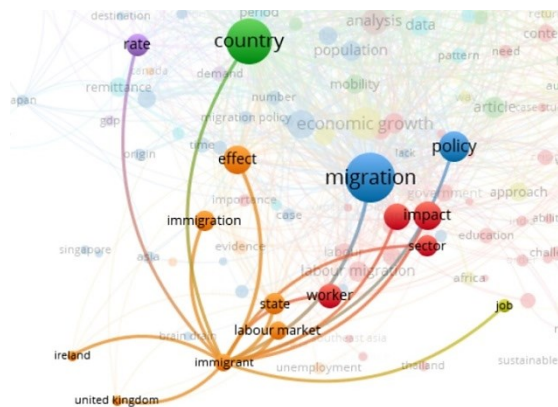


Figure 10. Density visualization based on Scopus data.

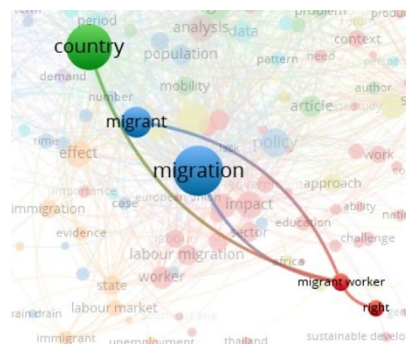
Source: own elaboration.

Among such watchwords that are intuitively associated with the subject of migration, like:

- people that changing their place of residence, items: *immigrant*, *migrant worker*, *labor migrant*,
- financial aspects, items: *income* and *remittance*,
- knowledge-learning aspects, items: *education* and *student*,
- general migration-related aspects, items: *change*, *mobility*, and *integration*, *change* and *remittance* have the widest network of connections with other items (Figure 11a-j).



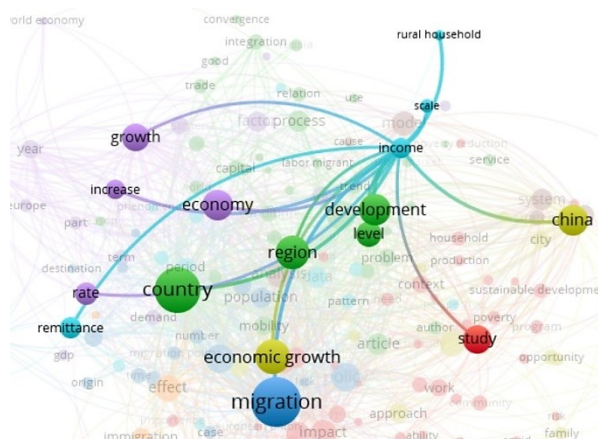
a)



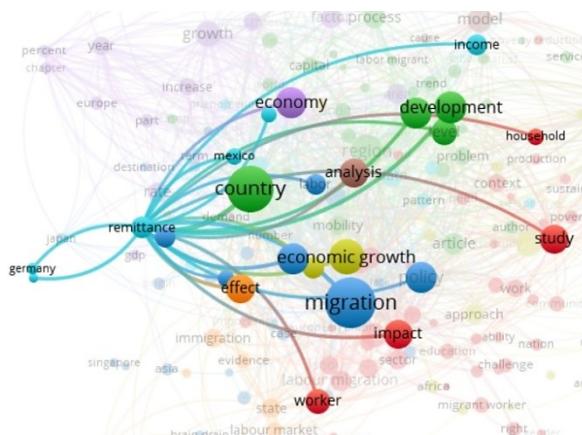
b)



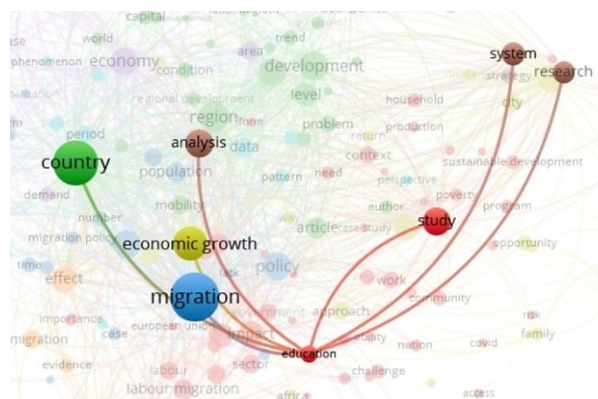
c)



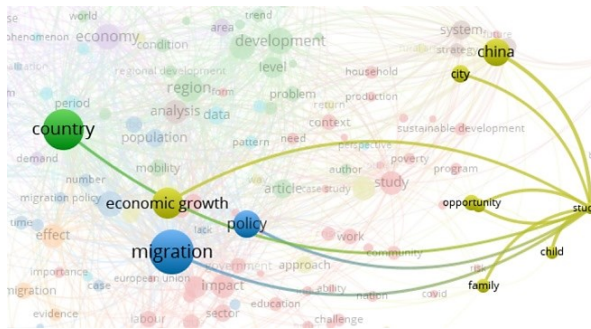
d)



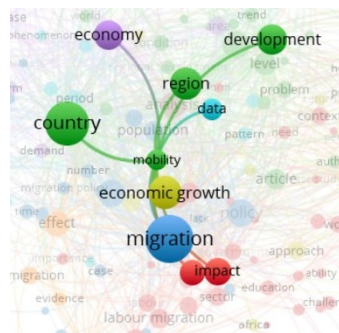
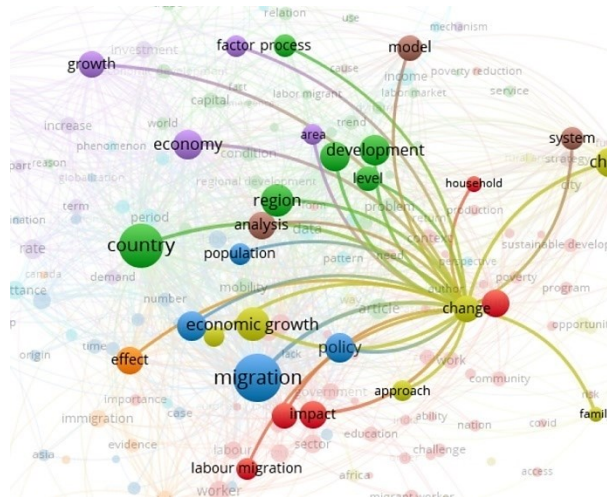
e)



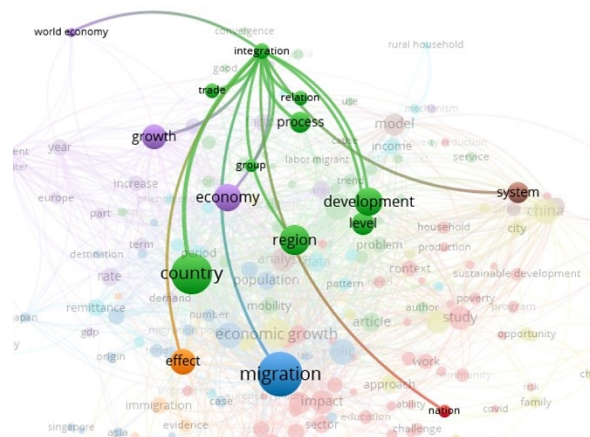
f)



g)



i)



j)

Figure 11a-j. Relationships between items: 11a. *integration*, 11b. *change*, 11c. *education*, 11d. *student*, 11e. *income*, 11f. *remittance*, 11g. *immigrant*, and other items selected for the study based on Scopus.

Source: own elaboration in VOSviewer program.

4. Discussion

The findings of this study highlight a significant and sustained increase in research on labor migration and regional development. This trend underscores the growing recognition of labor migration as a fundamental driver of regional economic dynamics, social transformations, and policy considerations. Scholars such as Castles (2010) Ratha et al. (2011) and de Haas (2021) have long emphasized the complex interplay between migration and economic development, with labor mobility shaping and being shaped by structural economic conditions, policy frameworks, and regional inequalities. The rising volume of research suggests that labor

migration remains central to global economic and social policy discussions, particularly in light of changing labor market demands and geopolitical shifts.

A regional analysis of labor migration studies reveals that China, the Czech Republic, the Philippines, Austria, Nepal, and Russia are among the most frequently researched countries. Additionally, Sub-Saharan Africa (Adepoju, 2003, 1995; Akanbi, 2017) and the European Union emerge as key areas of focus. These findings align with broader migration trends, where labor mobility plays a crucial role in economic restructuring, workforce redistribution, and regional development (Rodríguez-Pose, 2018). Adepoju et al. (2010) investigated Europe's migration agreements with migrant- sending countries in the global south.

China, in particular, has been extensively studied due to its large-scale internal migration, rural-urban labor shifts, and policies governing migrant workers (Xu, Li, 2008; Walmsley et al., 2013; Harris, Todaro, 1970; Chan, Yang, 2020, Chan, 2018). Research on China primarily focuses on themes such as economic development, labor migration policy, and the consequences of migration on urbanization and regional inequalities. Similarly, European labor migration studies often examine intra-EU mobility, economic integration, and the impact of migration policies on regional labor markets (McAuliffe, Triandafyllidou, 2021).

An analysis of publication trends over time indicates that early studies, particularly those published around 2010, concentrated on fundamental economic aspects of labor migration, such as international labor flows, economic growth, and regional development (Piore, 1979; Massey et al., 1993). These studies laid the theoretical groundwork for understanding how migration contributes to labor market efficiency and economic convergence.

More recent research, particularly after 2020, has expanded to include emerging themes such as sustainable development and migration governance. Studies focusing on Ukraine, for example, link labor migration to issues such as migration policy, economic resilience, and workforce mobility in times of crisis (Górny, Kaczmarczyk, 2020; Maruszewski, Kaczmarczyk, 2020; Kone, Özden, 2017). Meanwhile, discussions on the Sustainable Development Goals (SDGs) highlight the role of migration in achieving global development objectives, emphasizing challenges such as equitable labor market integration and policy coherence (OECD, 2020).

Density mapping of academic literature suggests that the most intensively studied themes in labor migration research include economic growth, migration impacts, and regional development (Hugo, 2008; Bauer et al., 2004; Brunow et al., 2015). These topics reflect long-standing concerns regarding the contribution of labor mobility to productivity, innovation, and regional economic restructuring (Sassen, 2013; Rodríguez-Pose, 2018).

However, certain areas remain underexplored. For instance, while financial aspects of migration, such as remittances and income redistribution, are well-documented, less attention has been given to their long-term effects on regional economic disparities (Betts, 2011). Similarly, issues related to knowledge transfer, education, and skills development in labor

migration remain fragmented, despite their significance for human capital accumulation and workforce adaptability (Zetter, 2018).

Furthermore, the social dimensions of labor migration, including migrant integration, social mobility, and community cohesion, warrant further exploration. While terms such as mobility, change, and integration are frequently mentioned in migration studies, their broader social and cultural implications require deeper interdisciplinary investigation (Hynie, 2018).

The findings of this study highlight significant trends in the literature on labor migration and regional development, emphasizing the growing academic interest in the economic, social, and policy-related dimensions of migration. Over the years, research on labor migration has evolved, focusing on its role in shaping economic structures, influencing regional disparities, and contributing to sustainable development (Grau, Aide, 2007; Hermele, 2021; Van Hear et al., 2020; Lagakos, 2020; de Haas, 2021; Tipayalai, 2020; Fu, Gabriel, 2012).

A key insight from the study is the prominence of economic considerations in labor migration research, particularly regarding its effects on labor markets, wage dynamics, and overall economic growth (Castles, 2010; de Haas, 2021). The connection between labor migration and regional development is well established, with studies frequently analyzing rural-to-urban migration patterns and their impact on urbanization, employment opportunities, and regional inequalities (Harris, Todaro, 1970; Chan, 2018). The financial aspects of migration, such as remittances and their role in income redistribution, remain a widely explored topic, particularly in relation to developing economies (Betts, 2011; Zetter, 2018).

Another critical area of focus is migration policy and governance, where scholars examine the role of national policies, international agreements, and institutional frameworks in shaping labor migration trends (McAuliffe, Triandafyllidou, 2021). Studies suggest that effective migration governance can maximize the benefits of labor mobility while mitigating associated challenges, such as exploitation and labor market segmentation (OECD, 2020). Additionally, social and cultural dimensions of migration, including migrant integration, discrimination, and community cohesion, have gained increasing attention, particularly in the context of host societies (Hynie, 2018; Scholten, Penninx, 2016).

One of the most emerging areas in migration studies is knowledge transfer and skills development, focusing on brain drain, brain gain, and the role of education in shaping labor migration flows (Liu-Farrer, Docquier, Rapoport, 2012; Kone, Özden, 2017). This research is particularly relevant in the context of high-skilled migration and its implications for both sending and receiving regions. Furthermore, sustainability and migration have become a growing field of interest (Hermele, 2021; Pécoud, 2014; Martin, 2022; Castles, 2009; Al-Husban, Adams, 2016; Holliday et al., 2019; Adger et al., 2019), particularly regarding the alignment of labor migration policies with the United Nations' Sustainable Development Goals (SDGs) (OECD, 2020).

These key research trends, summarized in Table 2, illustrate the diverse themes within the field of labor migration and regional development. The density map analysis confirms that well-researched areas include migration's economic impact, regional disparities, and policy frameworks, while less explored areas, such as the role of labor migration in environmental sustainability, present opportunities for future studies. As migration continues to shape regional and global development trajectories, further research is needed to address emerging challenges, particularly in relation to geopolitical shifts and labor market transformations.

Table 2.

Key research trends in labor migration and regional development

Key research area	Main themes	Key references
Economic impact of labor migration	<ul style="list-style-type: none"> - Labor migration as a driver of economic growth. - Productivity and wage effects. - Impact on labor markets and employment structures. 	Castles (2010), de Haas (2010), Piore (1979), Stark, Bloom (1985), Rajan (2004)
Migration policy and governance	<ul style="list-style-type: none"> - National and regional migration policies. - Labor rights and protections. - The role of international organizations. 	McAuliffe, Triandafyllidou (2021), OECD (2020)
Urbanization and regional disparities	<ul style="list-style-type: none"> - Rural-urban migration and regional inequalities. - Urban labor market integration. - Infrastructure and housing challenges. 	Harris, Todaro (1970), Chan (2018), Rodríguez-Pose (2018)
Financial aspects of migration	<ul style="list-style-type: none"> - Remittances and income redistribution. - Migration and financial inclusion. - Effects on sending and receiving regions. 	Betts (2011), Zetter (2018), OECD (2020)
Social and cultural dimensions	<ul style="list-style-type: none"> - Social integration of migrant workers. - Discrimination and labor market segmentation. - Community cohesion and identity. 	Hynie (2018), Scholten, Penninx (2016), Chen (2005)
Knowledge transfer and skills development, brain drain	<ul style="list-style-type: none"> - Brain drain vs. brain gain. - Education and skill acquisition of migrant workers. - Migration and innovation. 	Kone, Özden (2017), Massey et al. (1993), Liu-Farrer (2009), Docquier, Rapoport (2012)
Sustainability and migration	<ul style="list-style-type: none"> - Migration's role in achieving Sustainable Development Goals (SDGs). - Circular migration and environmental sustainability. - Policy coherence for sustainable labor mobility. 	OECD (2020), McAuliffe, Triandafyllidou (2021), Hermele (2021), Pécoud (2014), Martin (2022), Castles (2009), Al-Husban, Adams (2016), Holliday, et al. (2019), Adger et al. (2019)

Source: own elaboration.

The findings of this study underscore the critical role of labor migration in shaping sustainable regional development. While much of the existing research has focused on the economic factors and impacts of migration, the emergence of new topics, such as migration governance, workforce digitalization, and climate-driven labor mobility, indicates promising avenues for future exploration (McAuliffe, Triandafyllidou, 2021).

The impact of migration on both source and destination areas depends on factors such as migration flow size, composition, context, and timing. Migrants' interaction with new environments influences their consumption, behavior, and engagement with local

socioeconomic systems, all of which affect sustainability. Migration can drive both positive and negative outcomes, leading to an overall ambiguous effect. While migration offers individual benefits, it also brings complex challenges, including labor market shifts, brain drain or gain, resource demands, and the impact of remittances (Skeldon, 2009). The relationship between migration and development remains contentious, shaped by varying analytical approaches and political perspectives (Castles, 2011).

The connection between migration and sustainability outcomes in both source and destination areas, particularly through remittances, is well-documented (de Haas, 2020; Levitt, 1998). Migration is also associated with increased social mobility at destination (Lyu, 2019). Previous studies indicate that emigration reduces the overall labor supply, particularly in specific sectors (Skeldon, 2009). As a result, if migrants are more likely to come from unemployed populations, migration can ease unemployment pressures and decrease the demand for social security programs in source areas (Lyu, 2019).

The relationship between migration and sustainability is shaped by changes in physical capital, human capital, and labor resources. In the short term, migration can influence these factors in various ways (Gavonel et al., 2021). Firstly, a sustained increase in migration flows may lead to a decline in income per capita due to the dilution of physical capital. This occurs when rapid population growth results in available capital being distributed across a larger number of people, reducing per capita resources. Secondly, migration can impact human capital levels, depending on the educational background of migrants and the extent to which migration is selective based on skill levels. Thirdly, the effect of migration on the labor force is less definitive, as it depends on the demographic composition of migrants (Boubtane, et al., 2016) and the degree of substitutability between migrant and native workers, among other factors. These three dynamics collectively shape income per capita, which is typically represented in economic models through a standard aggregate production function.

Researchers point out that migrant communities contribute valuable knowledge, perspectives, and experiences related to sustainability (Gavonel et al., 2021). However, their voices are frequently overlooked in policy discussions and formal sustainability planning (Siddiqui et al., 2021). Research increasingly shows that incorporating diverse viewpoints into inclusive knowledge systems leads to more effective and transformative actions (Scoones et al., 2020). Migrant social networks, both in their countries of origin and destination, influence the outcomes of migration management policies (Sørensen, 2012). Additionally, the strictness of entry and integration policies plays a crucial role in shaping migrants' ability to contribute to sustainability transitions (de Haas, 2010; Bakewell et al., 2016). This ability is closely tied to migration infrastructure, which refers to the interconnected technologies, institutions, and actors that support mobility (Xiang, Lindquist, 2018).

Scholars indicate that migration impacts community resilience and resource sustainability (Adger et al., 2002; Tebboth et al., 2019). Population growth affects resource demand, while migration redistributes residents, influencing density and land use (Gray, Bilsborrow, 2014).

Migration-sustainability dynamics have been analyzed through ecological, cultural, and policy perspectives (Rees, 2006). New migration patterns shape social, economic, and environmental sustainability, as seen in Amsterdam, where migrants perceive sustainability as integrating social goals, economic opportunities, and urban livability.

On the other hand, Gavonel et al. (2021) suggest the existence of a migration-sustainability paradox, where migration simultaneously contributes to economic globalization, exacerbating the sustainability crisis, while also serving as a catalyst for positive social and environmental transformation. In other words, migration exerts both beneficial and detrimental influences on sustainability, resulting in an overall impact that remains uncertain. This paradox can be explored through hypotheses and empirical data across various spatial and temporal scales. For instance, some evidence indicates that migration may drive an increase in global CO₂ emissions. Liang et al. (2020) identify a positive correlation between international migration and CO₂ emissions, although no direct causal relationship is established. Likewise, Shi et al. (2020) observe a link between internal migration in China and the emission of air pollutants. However, migration also has the potential to foster sustainable development in both origin and destination regions, highlighting its complex and multifaceted role in sustainability dynamics.

From a policy perspective, labor migration management must evolve to address contemporary challenges, including demographic shifts, labor market mismatches, and geopolitical uncertainties. Governments and international organizations must develop policies that balance labor market flexibility with migrant rights protection, ensuring that migration contributes positively to both sending and receiving regions (OECD, 2020).

Governance at all levels often overlooks migration in sustainability policies and, even more so, sustainability in migration policies. The Millennium Development Goals ignored migration entirely (Fukuda-Parr, 2016), while the SDGs made limited progress by incorporating it into a few targets (Piper, 2017). The International Organization for Migration (IOM) advocates for sustainable reintegration pathways for returning migrants (IOM, 2019). However, migration and sustainability planning remain largely fragmented across policy domains, despite their strong interconnections.

Future research should also expand beyond economic analyses to consider broader socio-political and environmental dimensions of labor migration. For instance, exploring the intersections between migration, sustainability, and technological change could provide valuable insights into the future of work and regional development in a rapidly evolving global economy (Scholten, Penninx, 2016).

By identifying well-researched areas and gaps in the literature, this study provides valuable guidance for academics, policymakers, and development practitioners seeking to leverage labor migration for sustainable regional development.

The analysis of migration from the perspectives of crisis (see: Łukaniszyn-Domaszewska, Mazur-Włodarczyk, 2025a), sustainable development, and resilience (see: Łukaniszyn-Domaszewska, Mazur-Włodarczyk, 2025b) opens the door for further debate on the complexity

of this phenomenon. It raises important questions about how societies, governments, and international organizations can balance short-term humanitarian responses with long-term strategies for integration and stability. Additionally, the resilience perspective invites discussion on the agency of migrants themselves - how they adapt, contribute, and shape their new environments. Future research and policy discussions should focus on the interplay between these perspectives to develop more comprehensive and effective migration policies.

5. Summary

This study provides a comprehensive analysis of the literature on labor migration and regional development, highlighting key research trends, geographical focus areas, and evolving scholarly discussions. The findings indicate that labor migration is a crucial factor shaping regional economies, influencing employment patterns, wage structures, and economic growth (Castles, 2010; de Haas, 2010). A significant body of research underscores the economic consequences of migration, with particular attention to remittances, labor market integration, and rural-urban mobility (Harris, Todaro, 1970; Betts, 2011).

Additionally, the policy and governance aspects of migration have received substantial attention, as scholars explore the impact of national and international policies on labor mobility and workforce regulation (McAuliffe, Triandafyllidou, 2021; OECD, 2020). Migration governance is particularly relevant in the context of economic unions such as the European Union, where labor mobility plays a critical role in regional integration and economic convergence (Scholten, Penninx, 2016). However, research gaps remain, particularly concerning the long-term effects of migration on regional sustainability and the role of labor migration in mitigating demographic challenges such as aging populations and labor shortages (Zetter, 2018; Kone, Özden, 2017).

The table 3 summarizes key policy recommendations that can enhance labor migration governance by incorporating sustainability, digital transformation, inclusivity, public-private collaboration, and resilience. These strategies provide a holistic framework for policymakers to address both current and emerging challenges in migration management.

By integrating sustainability principles, governments can create fairer and more inclusive migration policies that align with global development goals. Digital technologies, when effectively implemented, can streamline migration processes and enhance security, while addressing linguistic and regional biases in research ensures that migration policies reflect diverse perspectives. Furthermore, fostering collaboration between public and private sectors can drive economic opportunities for migrants and host communities alike. Finally, building resilience into migration systems will help mitigate the impact of crises and ensure long-term

stability. These recommendations serve as a foundation for further discussion and policy development, emphasizing the need for evidence-based and adaptive migration governance.

Table 3.

Policy implications and recommendations according labor migration management

Policy area	Recommendation
Integrating sustainability into migration policies	Adopt long-term, sustainability-driven migration policies, promote fair labor conditions, ensure social protection, and align policies with SDGs. Encourage ethical recruitment and migrant integration programs.
Leveraging digital technologies for migration governance	Implement digital tools such as blockchain for secure documentation, AI-driven skills matching, and online platforms for migration processes. Ensure digital inclusion for migrants.
Addressing language and regional biases in migration research	Support multilingual and regionally diverse research through funding translations, collaborations with non-English institutions, and integrating diverse perspectives into migration policies.
Enhancing public-private partnerships	Foster collaboration between governments, businesses, and civil society for skills development, labor market integration, and migrant entrepreneurship. Provide incentives and regulatory support.
Strengthening resilience in migration systems	Develop contingency plans for crisis-driven migration (e.g., pandemics, climate change, political instability). Support displaced workers and promote adaptability strategies.

Source: own elaboration.

Migration serves as a driver of development, yet it is governed by nation-states through policies that shape regional dynamics within countries and regulate the movement of people across borders. The sustainability and transformative potential of migration should be integrated into policymaking and public decision-making processes. When migration enhances overall well-being, reduces inequalities between regions and societal sectors, and minimizes environmental impacts, it can play a crucial role in advancing sustainability transitions (Gavonel et al., 2021).

A notable emerging trend is the interaction between labor migration and sustainable development, particularly in relation to the United Nations' Sustainable Development Goals (SDGs) (OECD, 2020). While migration is often framed as a challenge, recent literature suggests that well-managed labor migration can contribute to economic resilience, innovation, and knowledge transfer, particularly in the context of high-skilled migration (Pécoud, 2014; Hynie, 2018). However, concerns persist about social cohesion, migrant rights, and integration policies, highlighting the need for further interdisciplinary research in this field.

Overall, this study confirms that labor migration is an essential driver of regional development, yet its effects are highly context-dependent. Future research should focus on underexplored dimensions, such as the impact of climate change on labor migration patterns, the role of digitalization in shaping new migration flows, and the long-term sustainability of migration-driven economic growth. Addressing these research gaps will be critical in ensuring that migration policies align with broader development objectives and contribute to both economic and social stability.

In conclusion, by exploring migration through the lenses of crisis, sustainable development, and resilience, this analysis provides a well-rounded perspective on its challenges and opportunities. Each approach sheds light on different aspects of migration, from immediate humanitarian concerns to long-term societal adaptation. Understanding these dimensions is crucial for developing effective policies and strategies that address migration in a balanced and sustainable way.

The limitations of this research include those related to the specificity of the SLR, e.g. detailed queries and a narrow selection of data sources. These studies were based on only two databases, in which mostly English-language documents are indexed. The above excludes many scientific texts published in other languages and devoted to the researched area. These databases have their characteristics and limitations, visible e.g. in that the same inquiries resulted in obtaining a different number of documents in WoS and Scopus. However, they are not the only databases of scientific documents. In the future, it is worth carrying out SLR also based on other databases that enable downloading files in formats compatible with VOSviewer (or other software), as well as databases previously incompatible with VOSviewer, such as Google Scholar or Research Gate.

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