ORIGINAL ARTICLE

International networks in cultural industries: the case of agencies for opera artists in the immediate post-COVID-19 period

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Abstract

This study presents an empirical investigation into the internationalization processes within the opera performing arts industry, which represents a critical component of the broader creative industries. By utilizing data from Operabase, a comprehensive online database of opera-related information, we employ social network analysis to delineate the network of connections established between nations through the mobility of opera artists, mediated by the agencies that represent them. Moreover, the research assesses the influence of factors such as geographical proximity, cultural affinity, market dominance, and reciprocity on these international networks. Our findings provide a nuanced understanding of the internationalization of opera, emphasizing the significance of geographical proximity, reciprocity, and (partially) tradition/dominance in the opera market as key drivers of global interconnectedness in this domain.

Keywords Social network analysis · Opera · Artist agency · Global production network · Cultural industries

JEL Classification F23 · L14 · R10

1 Introduction

At the onset of the nineteenth century, Camillo Benso di Cavour, a prominent Italian politician, asserted that opera was an industry with global ramifications (Parker, 2002, p. 87). This statement remains relevant today, as opera has not only sustained but also significantly expanded its global reach. From 1996 onwards, over 600,000

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operatic performances have taken place in more than 3,000 theatres worldwide (Operabase,[1] data referenced in the following sections). The global reach of opera has been growing steadily since the 1990s, although as early as the mid-1960s major opera houses worldwide began embracing a more international outlook (Belina-Johnson & Scott, 2016).

Despite its proliferation, the opera industry has received surprisingly limited attention from economists (Algieri, 2022). The analysis of the opera's international expansion remains underexamined, which is unexpected for two primary reasons. First, for cultural industries in general, and performing arts in particular, international expansion is increasingly critical for enhancing competitive positioning in the global market (Rastrollo-Horrillo, 2020). In this context, there is a need of studies that elucidate the mechanisms of internationalization and identify factors that contribute to its success. Second, internationalization significantly influences both the operational and organizational processes as well as the aesthetic and social dimensions of performing arts (Garde & Severn, 2020). Therefore, understanding the global flows of opera-related practices, personnel, funding, and works is essential for examining the evolving dynamics of this industry and its artistic outputs.

Existing studies have examined the adaptation and integration of Western opera into diverse cultural contexts and the internationalization strategies employed by specific opera houses to navigate the global performing arts market (Giordano et al., 2017). This research extends the analysis of opera internationalization by focusing on the international mobility of opera artists facilitated by the activities of artist agencies.

The literature emphasizes that intermediaries are crucial in global cultural markets (Disdier et al., 2010): in the opera industry, artist agencies act as key intermediaries (Stauss, 2020). These agencies support artists, including singers and other performance professionals, by providing strategic management and professional expertise, thus compensating for their limited understanding of diverse business practices (Rastrollo-Horrillo, 2020). They address labour market challenges faced by artists (Bielby & Bielby, 1999) and enhance the marketability of their work (Lizé et al., 2022). Additionally, on the demand side, agencies bridge the gap between artists and other stakeholders, such as theatres and productions companies, thereby shaping the cultural landscape to bolster artists' reputation and success (Lizé et al., 2022). Consequently, artist agencies play a pivotal role in driving the internationalization of the opera industry by creating and developing international flows of artists (Loots et al., 2022).

Within this context, this paper pursues two complementary objectives. First, it aims to illustrate the international spread of these agencies' activities, which can be mapped based on the diffusion of the artists they represent across different countries. Second, it seeks to provide insights into the factors associated with this diffusion among countries, which, in turn, shapes the market and the aesthetic dimensions of operatic products.

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[1] The website is available at: https://www.Operabase.com/ [accessed on February 2024].

To achieve these objectives, we conduct a quantitative analysis using data from Operabase, which is widely recognized as the world's leading online repository of comprehensive information on opera events worldwide, including details about theatres, artists, and the agencies representing them. To provide a current perspective on the international flows of opera artists facilitated by agencies, we focus our analysis on data from recent years—in particular, we are considering the immediate post-COVID-19 period. Leveraging the Operabase dataset, we mapped the activities of over 500 opera artists' agencies by looking at the number of artists each agency sent abroad for performances. This approach enabled us to construct a detailed network of artists' movements across countries, tracing the connections from the country where each agency is based to the country where the performances took place.

Our investigation employs social network analysis (SNA), a methodology that has been relatively underexplored in creative industries research. As Kurt and Kurt (2020) emphasize, SNA is a powerful tool for analysing geographically dispersed production networks, offering a dynamic perspective on international operations. In our study, SNA is crucial for visualizing and analysing the global flows of opera talent orchestrated by artist agencies.

Our findings reveal that European countries, historically the birthplace of opera, continue to occupy a central role within the global network shaped by the international movements of opera artists facilitated by agencies. Consistent with this descriptive evidence, our analysis suggests that this network primarily involves countries with a well-established tradition of opera. Furthermore, some Asian countries, notably China, South Korea, and Japan, have also emerged as significant nodes within the global network. More broadly, the observed relationships between countries suggest that geographical distance and mutual exchanges positively impact the movement of artists. However, the presence of relationships between countries that are not geographically close, nor culturally similar suggests that the opera industry is internationally multicentric, a necessary consequence of evolving aesthetic and organization dimensions of operatic products, under the boost to creativity and innovation derived from the worldwide diffusion of the digital economy.

The bulk of the paper is articulated as follows. Section 2 lays the groundwork for our research with a dual focus. First, it presents a comprehensive review of the relevant literature on the role of intermediaries in shaping internationalization within cultural industries, with particular emphasis on opera. Second, it builds on previous scholarly work to develop a conceptual framework that underpins the hypotheses regarding the variables influencing international connections within this industry. Section 3 introduces the data collection process, and the methodology employed in our analysis. Our findings are presented and extensively discussed in Sect. 4. Finally, Sect. 5 concludes, summarizing the key takeaways, potential implications and limitations of our research.

2 Literature review and conceptual framework

2.1 Cultural industries and the role of intermediaries

The literature acknowledges that several types of intermediaries operate within cultural and creative markets, each with different characteristics and objectives. These include managers, foundations and unions, talent scouts, online platform, brokers, critics, and experts, arts and cultural councils and centres, economic development agencies, creative industries incubators, festivals and trade shows (Foster et al., 2011; Friedman, 2014; Jakob & Heur, 2015; Kiernan, 2021; Lingo & O'Mahony, 2010; Luo et al., 2021). Furthermore, recent studies suggest that new types of intermediaries continue to emerge in creative industries (Azzellini et al., 2019; Jeanpierre & Roueff, 2014; Lizé et al., 2022). In the opera industry, intermediaries are often more traditional, such as those described by Albinsson (2021): these are primarily agencies that support artists' career and earn commissions based on the artists' fees after performances. These agencies are essential in sustaining the internal dynamics of an industry that seeks to uphold operatic traditions while simultaneously introducing innovative elements (Cancellieri et al., 2022).

Opera is an extremely expensive performing art where "an important determinant of the cost of producing opera is the system by which performances are organized—by the *stagione* or in repertory". (Towse, 2011, p. 315). In the *stagione* system, "principal singers are hired by the opera for the rehearsal period and the run of performances", while the repertory system "has nightly alternating performances of several operas and ballet in the repertory over the performing season or year"—which requires either significant efforts from the company or a larger company (Towse, 2011, p. 315). Moreover, depending on the repertoire, theatres may face challenges in hiring singers for specific roles, necessitating intermediaries to help match the demand for specialized professionals. Reinterpreting existing opera performance has become a common—and challenging—strategic approach for opera houses, necessitating the involvement of multiple industry actors, including artists' agencies. The so-called Baumol's cost disease (Baumol & Bowen, 1966), which is typically affecting industries with low increases in labour productivity, is here emerging as a threatening element for the opera industry—where opera companies might have to choose between smaller productions or reducing rehearsal time, just to mention a few examples (Heilbrun, 2013). As discussed by Mariani (2007) and Voss et al. (2000), performances are staged in theatres, which can be distinguished between presenting and producing theatres. The former purchase shows developed by external companies, focusing primarily on logistics and marketing the performances to the public. Production theatres, on the other hand, are responsible for the entire production: from stage preparation to the selection of artists, utilizing both internal resources and external collaborators. This complexity is reflected in the aforementioned cost disease problem, where different stakeholders require coordination and a shared strategic vision, but the constantly evolving organizational issues of the opera industry make them particularly challenging to achieve.

Intermediaries are economic entities that position themselves between buyers and sellers to reduce transaction costs (Coase, 1937; Williamson, 1985) and therefore addressing the above issues. By facilitating the exchange of physical goods as well as of intangible assets, such as ideas and services (Ricart et al., 2004), intermediaries play a crucial role in shaping markets, particularly in regard to internationalization (Ricart et al., 2004; Virtanen et al., 2022). Hiring renowned artists from abroad may help to increase revenues or and the demand for opera products—both potential solutions (to Baumol's cost disease) which can be achieved thanks to intermediaries. Bourdieu (1984) emphasized the importance of mediating between artists, producers, and consumers, thereby bridging cultural production and consumption (Negus, 2002). Indeed, the role of intermediaries becomes particularly important in the cultural goods market given the high levels of uncertainty that characterize the products and services exchanged (Kim & Jensen, 2011; Sasaki et al., 2020). According to Lizé et al. (2022), intermediaries in cultural industries provide professional services for the creation and dissemination of symbolic goods. In the opera industry, intermediaries mediate between artists and their employers, facilitating the movement of artists from one production to another, and from one country to another, reducing transaction costs such as search and information costs of opera houses worldwide.

When promoting their artists abroad, agencies function as exporters, building international production networks characterized by complex interconnections between multiple players (artists, producing theatres) across different countries. Figure 1 illustrates the central role played by artists' agencies in contributing to the establishment of global networks in the opera industry.

2.2 What drives artist agencies' internationalization?

Our analysis conceptualizes the operations of artist agencies as part of production networks. In this context, our research question is: what factors influence the artist agencies' ability to channel artists' movements towards specific countries?

We propose potential drivers behind artists agencies' international networking drawing on literature that examines intermediaries as focal agents in the internationalization process through a network perspective. Specifically, this literature suggests that the creation of persistence of relationships across countries is influenced by spatial proximity (H1), cultural proximity (H2), country dominance (H3) and reciprocity (H4). These factors are illustrated in detail in the following sub-sections.
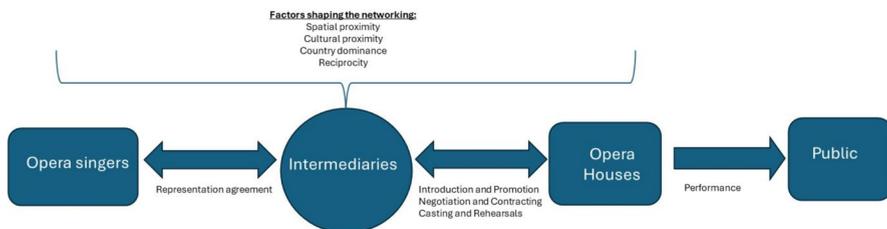

Fig. 1 Conceptual framework

2.2.1 Spatial proximity

In business and economics, a strong emphasis has been given to bilateral dependencies (Herman, 2022), particularly the concept of proximity as a key factor in the creation and success of innovation networks (Papanastassiou et al., 2020; Schmitt & Biesebroeck, 2013). Borrowed from economic geography, proximity can be disentangled into several dimensions (Boschma, 2005). While spatial (or geographical) proximity is the most intuitive, studies show that also other dimensions—such as the cultural and the institutional ones—can be drivers of global networking (Che et al., 2022; Cingolani et al., 2018).

Spatial proximity plays a crucial role in global production networks, as geographical configurations shape network relationships (Herman, 2022). Being geographically close fosters networking by reducing transaction and communication costs, and by facilitating interconnections between countries, often due to accessible transport systems (Enright, 1995; Torre & Rallet, 2005). Previous research on cultural industries has confirmed the importance of spatial proximity for networking (Balland et al., 2013; Lin, 2014; Watson, 2008), largely due to the close ties between place and culture. The geography of international networks in the opera industry follows similar patterns with opera venues located in strategic, often urban,[2] locations. The proximity of these venues to artists' agencies is expected to facilitate the exchange of artists. Thus, we hypothesize:

H1 Spatial proximity is positively associated to opera artist agencies' international networking.

2.2.2 Cultural proximity

In addition to spatial proximity, cultural proximity is also a driver of global production networks. Scholars have investigated the impact of cultural proximity on network formation, particularly within trade networks (Chong et al., 2019; Felbermayr & Toubal, 2010; Linders et al., 2005). Countries that share similar cultural norms,[3] values, and belief systems are more likely to form relationships, as they have comparable perceptions and understanding of business practices, which facilitates networking. Cuypers et al., (2020, p. 728) noted that country-level cultural differences "may serve as contingencies in the operations of networks and networks structures" and that "distant national cultures may impede the formation of an alliance tie".

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[2] This has recently changed during the COVID-19 pandemic: some opera houses, including the Royal opera House in London (UK), offered online shows in 2020 for their customers. However, this was an exceptional circumstance, and it will not be discussed in this study—even if further analyses on this phenomenon may be useful for understanding business model innovation in the opera industry.

[3] We distinguish here between the concept of cultural familiarity and cultural similarity: while having cultural familiarity means that it is possible to understand and therefore easily communicate with individuals from another culture, cultural similarity implies the communality of certain social practices (Hofstede, 2001).

Studies on the opera industry have highlighted that international productions are often favoured over national ones, but the adaptation of new productions to suit local audiences is becoming increasingly common worldwide (Zhou, 2023). Moreover, it is not uncommon to see opera productions in a given country that rely on opera companies and artists from culturally proximate countries (Giordano, 2017). Other examples can be found in the music industry (Lin, 2014) and the event industry (Xu, 2022): artists, performances, and touristic destinations can attract individuals if they show socio-cultural and emotional closeness with their audience. On the basis of this background, we formulate the following hypothesis:

H2 Cultural proximity is positively associated to opera artist agencies' international networking.

2.2.3 Country dominance

Opera is often perceived as part of a nation's cultural heritage, contributing to the formation of its cultural identity, and serving as a driver to spread that culture internationally (Giordano, 2017). Opera performances become symbols of the cultural institutions (i.e. countries) where these works were originally conceived and produced (Paola, 2014). Despite growing demands for innovation in current repertoires, traditional elements still influence today's repertoires (Kotnik, 2004) and the influence of the European opera production system—the one with the longest tradition—remains pervasive in the industry. Indeed, Africa, Asia, and South America (which are emerging markets for the opera industry) have imported the European operatic tradition and adapted it to suit the preferences of the local audience (Bereson, 2002; Euba, 2003; Giordano, 2017; Rosselli, 1993; Yamomo, 2017). These considerations lead to our third hypothesis:

H3 Dominant countries play a crucial role in in driving opera artist agencies' international networking.

2.2.4 Reciprocity

In addition to the multifaceted concept of proximity, another crucial driver of networking is reciprocity or mutuality. This concept has been widely explored in business studies (Fletcher, 1996; Herman, 2022; Smith & Sarabi, 2022), but it can also be found in recent studies on creative industries examining the role of individuals and organizations in promoting national and international partnerships (Aerne, 2020; Green, 2015; Toscani & Prendergast, 2022).

Reciprocity requires trust and coordination (Celly et al., 1999; Perri & Andersson, 2014), which can be difficult to establish. In global networks that characterize cultural industries, reciprocity is therefore seen as a means of facilitating cross-cultural exchange between countries, thereby promoting diversity and cross-fertilization (Arrowsmith et al., 2016). Reciprocal relationships are particularly important in the opera industry. Artist agencies that successfully promote their artists abroad

can initiate a process of mutual recognition between their home country and the host country. For instance, a soprano moving from the USA to China for a performance could serve as a catalyst for establishing regular exchanges of artists between the two countries. Therefore, we propose the following hypothesis:

H4 Reciprocity is positively associated to opera artist agencies' international networking.

3 Methodology

3.1 Data

Recent studies have underscored the potential of utilizing large dataset, particularly within the domain of economic research (Aguinis et al., 2020; Chang et al., 2022; Hu et al., 2021). Our analysis leverages data extracted from Operabase, a comprehensive online database that catalogues opera theatres, artists, companies, festivals, performances, and managers operating globally. This database maintains constantly updated information spanning from 1991 to 2023 and includes data on more than 100,000 artists and 500 artist agencies.

Our research aims to accurately depict the current state of international networks among countries, focusing on the relationships formed through the flows of opera artists facilitated by the agencies that represent them. To achieve this, we specifically concentrate on Operabase data from the 2021–2022 period. We intentionally exclude any longitudinal analysis of networking dynamics, which would necessitate accounting for changes in artists' affiliations over time. We selected the 2021–2022 period as it was the most recent data available in Operabase at the time of our data collection. Moreover, focusing on 2021–2022 is particularly insightful as it allows for the examination of a pivotal phase when opera houses were reopening after the most intense and disruptive period of the COVID-19 pandemic. By concentrating on this immediate post-pandemic period, we capture the initial adaptations and strategies employed by opera houses and agencies as they navigated the challenges of resuming operations in a profoundly altered global landscape.

As discussed in the previous sections, this research examines the international flows of opera artists determined by their agencies. These agencies specialize in managing artists and promoting their work to opera performance producers, which naturally leads to the formation of network relationships between the country where the agency is located and the host country (where the performance takes place). When an agency 'sends' an artist abroad for a performance in another country, it establishes a network relationship between country i (where the agency is based) and country j (where the performance occurs). Thus, we map a global production network where nodes are countries, and the connections between nodes represent the exchange of artists mediated by agencies. It is important to note that we are not mapping the exchange of artists between agencies—for instance, when an artist changes their agent—since this information is beyond the scope of our research.

Data were extracted from Operabase through the data collection and management process described in Appendix A. More specifically, this appendix outlines how we tracked artists' affiliations with agencies and their performances in various countries.

3.2 Social network analysis (SNA)

Our investigation employs social network analysis (SNA), a widely utilized method in the business literature, particularly in studies examining global production networks (e.g. Cingolani et al., 2018; Herman, 2022; Smith & Sarabi, 2022; Solarino & Buckley, 2023). Scholars have emphasized that SNA is valuable for developing a systemic perspective on international transactions (De Beule et al., 2023; Kurt & Kurt, 2020); however, while SNA has been applied to the analysis of cultural industries (Chung, 2011; Currid-Halkett & Ravid, 2012; Seok & Nam, 2022), its use in the opera industry remains limited.

The application of SNA in our study enables a comprehensive examination of the connections between countries within the global opera industry. The hypotheses presented in Sect. 2 are tested using data corresponding to the nodes and connections of the global production network under investigation. Edge-level attributes define the relationships between nodes, such as the exchange of artists, while node-level attributes refer to the nodes' characteristics (Prell, 2012), which in our case pertain to the socio-economic traits of each country.

The first edge-level attribute in our model is geographical distance. This variable is measured as the Euclidean distance, expressed in thousands of kilometres, between the capital cities of countries. We used the R packages *tidyverse, units, sf, maps, and rnaturalearth* to create the adjacency matrix for modelling. A negative coefficient for geographical distance would indicate that geographic proximity positively influences networking, as shorter distances increase the likelihood of promoting artists in new countries and fostering connections.

The second edge-level attribute is cultural proximity. We measured this aspect by using the method proposed by Drogendijk and Slangen (2006, p. 367), which relies on Hofstede's cultural dimensions. The Hofstede model of national cultures is based on six dimensions: Power Distance, Uncertainty Avoidance, Individualism/Collectivism, Masculinity/Femininity, Long/Short Term Orientation, and Indulgence/Restraint (Hofstede, 2011). These dimensions represent core aspects characterising the culture of a nation; they influence organizational practices and societal functioning, and they can be used to map similarities and differences between national cultures—and therefore estimate the cultural distance between two countries. Following Drogendijk and Slangen's approach, cultural distance was calculated as the square root of the sum of the squared differences in scores across each cultural dimension.

$$CP_{jk} = \sqrt{\sum_{i=1}^{4} \left(I_{ij} - I_{ik}\right)^2 / V_i} \tag{1}$$

In (1), CP_{jk} is the cultural proximity between country j and k, I_{ij} is country j's score on the ith cultural dimension, I_{ik} is country k's score on the same dimension, and V_i is the variance of i's score.[4]

To test H3, which relates to the role of dominant countries in the opera industry, we identified the top 10 countries with the highest number of performances, based on Operabase data: Germany, USA, Russia, Italy, Austria, France, UK, Czechia, Switzerland, and Poland. This list aligns with the idea of the opera industry being dominated by Western countries, as opera originated in Europe and is closely tied to the Western classical music tradition. European countries and the USA are pivotal players due to their historical legacy and significant investment in the opera industry.

We examined potential preferential attachment between these dominant countries using an edge-level attribute, which is assigned a value of one if two dominant countries have a relationship and zero otherwise. Homophily, a key concept in SNA (Prell, 2012), is useful in understanding network dynamics in cultural industries (Shore, 2016). Through this variable, we explore whether dominant countries preferentially form connections with each other, thereby reinforcing their influence within the global opera network.

Finally, we tested H4 by examining reciprocity, focusing on the number of mutual connections in the network. Reciprocity identifies bilateral or mutual relationships as an endogenous process in global networks. A positive coefficient for this variable would indicate that reciprocity is a significant driver of global networking, while a negative coefficient would suggest that countries do not reciprocate artists' exchange.

3.3 Analytic procedure

Since we are looking at the presence of country-level relationships created by artists' agencies, our dependent variable is binary, with a value equal to 1 if there is a connection between country i and country j, and 0 otherwise. Connections are mapped as discussed in Sect. 3.1: when an agency (in country i) is 'sending' an artist to perform in country j, this leads to a connection between country i, where the agency resides, and country j, where the performance is held.

In this study, we investigate whether the connections we map are associated with the drivers illustrated in Sect. 3.2. To carry out this analysis, we rely on the logistic regression quadratic assignment procedure (LR-QAP). This procedure enables regressing a binary dependent network matrix on a series of independent network matrices, avoiding problems of dependence across observations which are naturally occurring with network data (Dekker et al., 2007). As independent variables, we

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[4] In the data preparation process, we manually imputed missing data for the following countries: Andorra, Cuba, Cyprus, Kyrgyzstan, Liechtenstein, Monaco, Oman, and Uzbekistan. Due to missing cultural data for these countries, we selected culturally similar countries as proxies: Spanish data for Andorra, Costa Rican data for Cuba, Greek data for Cyprus, Kazakh data for Kyrgyzstan and Uzbekistan, Austrian data for Liechtenstein, French data for Monaco, and data from the United Arab Emirates for Oman.

used four *nxn* matrices related to the above drivers: *geographical* (where X_{ij} represents the value of the geographical distance between country *i* and *j*), *cultural* (where X_{ij} represents the value of the cultural distance between country *i* and *j*), *dominant* (where X_{ij} is equal to 1 if two dominant countries have a relationship, and 0 otherwise), and *mutual* (where X_{ij} is equal to 1 if two countries have a mutual exchange of artists, and 0 otherwise).

$$\text{connection}_{ij} = \text{intercept} + \beta_1 \text{geographical}_{ij} + \beta_2 \text{cultural}_{ij} + \beta_3 \text{dominant}_{ij}$$
$$+ \beta_4 \text{mutual}_{ij} + \beta_5 \text{gdp\_diff}_{ij} + \beta_6 \text{pop\_diff}_{ij} \tag{2}$$

As indicated in (2), we also control for country-level characteristics: the average 2021–2022 national gross domestic product and population size. These variables allow to control for the economic strength and the market size for each country, as they are proxies of available economic resources and potential audience, which are essential elements for producing, organizing, and hosting opera events. Data for these control variables were collected from the World Bank and the International Monetary Fund. It is worth noting that we included these variables in the LR-QAP converting each country observation into a *nxn* matrix where each cell contains is a similarity index based on the absolute difference between: (a) the gross domestic product of two countries (gdp_diff) and (b) the population of two countries (pop_diff). A similar approach was adopted by Briseño-García et al. (2022). The analysis was carried out using the software UCINET 6 (Borgatti et al., 2002).

4 Results

Our analysis mapped 537 artists' agencies across 38 countries in the 2021–2022 period. While some of these agencies operate with multiple branches in different countries (for instance, we found one agency with branches located in ten different countries), 96% of them have a single branch located in one country. The five countries with the highest number of agencies are Germany (98), the USA (80), the UK (65), Italy (58), and Austria (46). The full list of countries involved in sending and receiving artists via agencies is provided in Appendix B.

As expected, Europe dominates in the number of countries sending artists; in other continents, only a limited number of countries act as senders, with no representation from Africa. This highlights the central role of mainstream culture in the opera market. Notably, the Schengen Agreement has facilitated the exchange of artists across European countries, alongside the legacy of traditional opera products. This legacy extends beyond well-known countries like Italy and Germany as a number of Eastern European countries receive artists. The heterogeneity of opera audiences is further demonstrated by the list of countries receiving artists; the interest shown by countries such as Egypt, Morocco and South Africa in hosting performers indicates their potential contribution to expanding the global demand for operatic productions. National legacy does not appear to be a critical factor for opera consumption, reinforcing the idea that the internationalization of tastes can enhance both the economic sustainability of the industry and career opportunities for artists.

In Asia, while the supply of artists is concentrated in three countries—Israel in the Middle East, China and Japan in the Far East—the number of countries receiving artists is broad, indicating a growing demand for opera professionals across Asia, as confirmed by UNESCO (2015).

Figures 2 illustrates the global production network for the 2021–2022 period. Countries are represented by nodes, while edges indicate the presence of connections between countries. The direction of the edge represent the flow from the agency's home country to the host country where the artist performed.

On average, each country is connected to 16 other countries, indicating a relatively dense network—network density is equal to 0.207. This suggests that opera is a globalized industry, where artist agencies facilitate the movement of artists across different countries and continents. European countries play a pivotal role in this network, occupying central positions and driving the international flow of artists. It is also noteworthy that several Eastern European countries, particularly Russia, hold central positions. Additionally, China, Japan, and South Korea are integral to the global opera network, fostering the expansion of operatic markets in East Asia, as noted by Fillis and Lee (2011). Australia also emerges as a significant player, which is unsurprising given that the Sydney Opera House is one of the world's busiest performing arts centres, staging up to 2,500 performances annually and attracting approximately four million visitors (UNESCO, 2015, p. 39). In the Americas, the USA and Brazil stand out as key contributors to the network, reaffirming their leading roles in the cultural industry (Duarte, 2022; UNESCO, 2015).

Some countries, especially the peripheral ones, occupy a certain position in the network due to specific socio-economic and geographical factors. For instance, Andorra receives artists from Spain and Portugal, while Costa Rica sources artists from the USA. There are also instances where countries without geographical or cultural proximity establish connections, such as Argentina and Liechtenstein. Ultimately, Fig. 2 confirms that the opera industry, like the broader cultural and creative
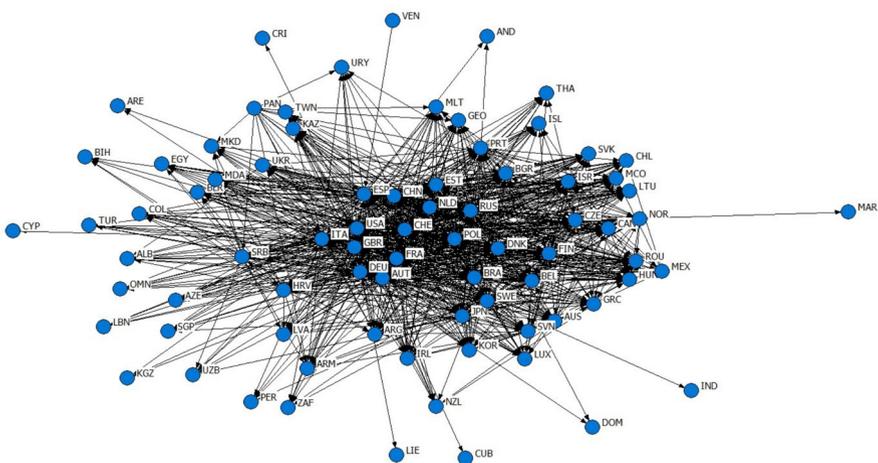

Fig. 2 Global production network 2021–2022

sectors, is multipolar (UNESCO, 2015), with each region evolving in response to its own market characteristics and aesthetic traditions in an ongoing process of exchange and adaptation.

Table 1 provides descriptive statistics (Table 1a) and correlation coefficients (Table 1b) for the variables included in the LR-QAP model. As anticipated, *gdp_diff* and *pop_diff* are positively and strongly correlated, while the variables *dominant* and *mutual* also exhibit strong correlations.

The model results are shown in Table 2. Model 1 includes only the intercept and control variables, while Models 2 through 6 test individual drivers, with Model 6 incorporating all variables. The table presents the coefficients for each variable, with standard errors in parentheses.

In Models 2 through 6, the *geographical* variable is consistently negative and statistically significant, indicating that countries located farther apart are less likely to exchange artists. An increase in geographical distance reduces the likelihood of artist exchanges by a factor between 0.875 and 0.920. This supports the hypothesis (H1) that moving artists across borders incurs in higher costs, particularly for logistics and bureaucracy, and that the greater the distance, the more difficult it becomes for agencies to promote their artists abroad. On the other hand, the closer the distance, the higher the probability of promoting an artist abroad. This finding is particularly relevant for smaller agencies with limited financial resources.

Results for the *cultural* variable are mixed. In Model 3, this variable shows a positive coefficient, suggesting that greater cultural distance may facilitate connections, which contradicts our expectations. However, in Model 6, the coefficient turns

Table 1 Descriptive statistics and correlation matrix

	Observations	Mean	Std. dev	Min	Max
a Descriptive statistics					
gdp*	79	1.14e+12	3.42e+12	3.34e+09	2.44e+13
pop**	79	6.58e+07	2.24e+08	36,577.5	1.41e+09
Geographical	79	6.17	4.74	0.06	19.86
Cultural	79	71.01	24.67	0	144.75
Dominant	79	0.01	0.12	0	1
Mutual	79	0.10	0.30	0	1

	gdp_diff	pop_diff	Geographical	Cultural	Dominant	Mutual
b Correlation matrix						
gdp_diff						
pop_diff	0.542					
Geographical	0.097	0.098				
Cultural	0.135	0.053	0.176			
Dominant	0.108	−0.005	−0.101	−0.056		
Mutual	0.198	0.055	−0.169	−0.028	0.349	

*gdp is considered here as the original value for each country—not the difference between countries

**pop is considered here as the original value for each country—not the difference between countries

Table 2 LR-QAP results

	1	2	3	4	5	6
Intercept	−1.531***	−0.863***	−1.206***	−1.595***	−2.169***	−1.762***
gdp_diff	0.431*** (0.179)	0.481*** (0.187)	0.444*** (0.188)	0.407*** (0.183)	0.347** (0.184)	0.372** (0.194)
pop_diff	−0.179 (0.836)	−0.148 (0.184)	−0.180 (0.184)	−0.155 (0.183)	−0.158 (0.184)	−0.141 (0.191)
Geographical		−0.133*** (0.031)				−0.083** (0.033)
Cultural			−0.005 (0.005)			0.001 (0.005)
Dominant				5.731** (0.831)		1.791 (0.802)
Mutual					8.404** (0.402)	8.175** (0.406)
Observations	6162	6162	6162	6162	6162	6162
P-value model	0.001	0.000	0.001	0.000	0.000	0.000
LL	−2992.366	−2849.124	−2986.114	−2876.572	−1923.747	−1888.221
R-squared	0.052	0.103	0.054	0.097	0.453	0.461
Permutations	5000	5000	5000	5000	5000	5000

*10% statistically significant; **5% statistically significant; ***1% statistically significant

negative. This may suggest that while artist agencies play a crucial role in penetrating culturally different markets, their role is less essential in culturally similar countries, where artists can promote their work independently. However, as the results are not statistically significant, we cannot support H2.

The positive coefficient for *dominant* in Models 4 and 6 suggests a homophily effect among leading countries in the opera industry. Countries with a high number of performances form a cohesive network, with agencies focusing on the exchange of artists between these countries. This aligns with Pratt et al.'s (2019) assertion that Europe's cultural strength is rooted in its heritage and arts institutions. However, we cannot fully support H3, as the coefficient for Model 4 is statistically significant ($B = 5.371$, odds ratio $= 308.202$) but the coefficient in Model 6 (B $= 1.791$, odds ratio $= 5.996$) is not. The introduction of the *mutual* variable impacts the *dominant* variable, as these are positively correlated (Table 1). This may be due to the structural features of the countries in our dataset, with some non-dominant countries, like China (Lin & Colbert, 2018), actively building global networks based on mutual exchanges.

Finally, the *mutual* variable shows a positive and statistically significant coefficient, supporting H4 ($B = 8.404$, odds ratio $= 4,465.192$ in Model 5; $B = 8.175$, odds ratio $= 3,552.770$ in Model 6). This suggests that countries with mutual exchanges are more likely to collaborate through artist agencies, creating bilateral flows within the global network.

These findings contribute to the broader discourse on globalization in theatre, particularly regarding the role of intermediaries, as discussed by Garde and Severn (2020). Physical proximity remains an important factor in facilitating intermediary activities, and reciprocal exchanges between venues also play a role in shaping global markets. Additionally, the dominance of specific countries highlights the importance of prominent productions in driving the opera market, raising concerns about the commodification of opera as a globalized cultural product (Garde & Severn, 2020). The future of opera will depend on its ability to navigate the challenges and opportunities of globalization, balancing the preservation of its symbolic value with the demands of commercialization.

5 Discussion and conclusions

The cultural and creative industries are experiencing significant internationalization, warranting scholarly attention. This study provides empirical evidence on the global expansion of the opera industry, which has been international since the early nineteenth century but remains underexplored compared to other cultural industries. In particular, our analysis focuses on the role of intermediaries, specifically artists' agencies. The role of intermediaries in the performing arts is evolving (Loots et al., 2022): in the opera industry, artists' agencies play a crucial role by connecting artists with productions, both domestically and internationally, thus driving the internationalization of the industry. Therefore, it is important to understand what network patterns emerge in such industry and what is driving this process.

Methodologically, our study introduces a novel perspective by utilizing Operabase, the largest online opera database, and applying a network approach for analysing relational data between countries—based on the role of artists' agencies. This approach enabled us to retrieve, process, and analyse the international network of opera artists shaped by agency activities. While SNA is widely used in business and economic studies, its application is less common in cultural economics research.

This work maps the international flow of opera artists facilitated by agencies. Furthermore, we identify key drivers of these international exchanges: spatial proximity and reciprocity, which suggest that economic factors and similarities in audience preferences can enhance international mobility, and, to a lesser extent, homophily between dominant countries. This reveals that, despite introducing innovative elements for reaching a broader audience (Cancellieri et al., 2022), opera theatres are likely to continue promoting traditional, well-known repertoires, as a consequence of specific market mechanisms related to cost structures and audience tastes (Bellini & Raglianti, 2023). This is reflected in the global production network we examined in this study, where cultural similarity is not a driver of internationalization. Adapting performances to local audiences (Zhou, 2023) does not necessarily require actors sent by agencies from culturally proximate countries: an actor's choice may be mainly motivated by economic aspects. In this vein, the industry faces challenges linked to Baumol's cost disease, limiting its capacity for diversification; and because financial problems affecting the single stakeholders rapidly spread in the entire industry (Baumol, 2006), artists' agencies must find effective and profitable strategies for supporting the industry's growth. According to our results, spatial proximity and the establishment of relationships with countries which are reciprocating artists' exchange can help to achieve economies of scale and scope, mitigating these challenges while encouraging a shift towards more standardized productions. These latter are also a consequence of consumers' tastes which are "uncomfortable with radical innovations and prefer to tag novelties onto familiar cognitive frameworks" (Bellini & Raglianti, 2023, p. 2). Baumol's cost disease can be a constraint for internationalization, but it is likely to affect opera companies and theatres rather than artists' agencies. Hence, these intermediaries become key for the industry's growth and its transition towards novel business models. However, this shift from niche to mainstream productions carries both benefits and drawbacks, affecting product differentiation and market dynamics and potentially hindering innovation.

Following this line of reasoning, our results suggest that the dominance of countries with a long opera tradition, such as those in Europe, expands the market but raises concerns about the commodification of opera as a globalized product (Garde & Severn, 2020). A key contribution of this study is its updated and more nuanced perspective on factors influencing intermediaries in the opera market, challenging conventional internationalization theory, which suggests organizations first target culturally similar markets (Fillis & Lee, 2011). Our analysis reveals that the opera industry is multipolar (UNESCO, 2015), since leading countries like those in

Europe, China, the USA, Japan, Brazil, Israel, and South Korea seem to play a two-fold role. On one hand, they can drive product standardization; on the other, these countries may also act as facilitators of global opera diffusion, promoting creativity and innovation, which are later developed in each single market according to national specificities. This is exemplified by relationships between geographically and culturally distant countries, such as Argentina and Liechtenstein. The complex network of relationships supports the continuous adaptation of opera products to diverse audience preferences, driven by the rise of the digital economy and new technologies (Zhao et al., 2024). In this context, opera actors "must find a balance between the push toward risky artistic exploration […] and the exploitation of traditional conventions" (Bellini & Raglianti, 2023, p. 2). Results suggest that such balance can be provided by the international networking activity of the opera agencies: they can implement cost efficiency strategies derived from traditional customer-oriented and logistics aspects, but they can also foster innovation and creativity. This combination can help businesses strengthen their market position and expand their product portfolio.

Despite the above insights, our study suffers from some limitations. First, by focusing on artist agencies as the primary facilitators of international mobility, we may overlook individual characteristics and choices of artists. Future research should consider factors such as nationality and educational background, which may also influence artists' mobility. However, at the moment such information on individuals is not available on Operabase; therefore, scholars interested on this topic should also develop innovative strategies for collecting novel data from alternative sources. Additionally, our analysis lacks a longitudinal perspective. Understanding how global networks evolve over time and how the importance of network drivers changes across periods would provide valuable insights. Although Operabase data is available from 1991, frequent changes made by artist—in terms of agencies that are representing them—complicate this analysis. As highlighted before, future research would benefit from innovative data collection methods and alternative sources to better capture historical trends in the opera industry.

Appendix A

Data scraping process

Operabase is an online database containing information of opera performances, the artists involved in each performance, the agency(ies)/manager(s) representing these artists, and the venue for all performances. For the analysis, we created a corpus of data extracting information directly from the website. Selenium and BeautifulSoup Python packages were used to create the scraper for extracting the data: the scraper employs the credentials of a user to login and browse inside the website for

the extraction. Once completed the extraction phase, the output of the scraper is then a condensed information of each season, where each row (season) includes the following information:
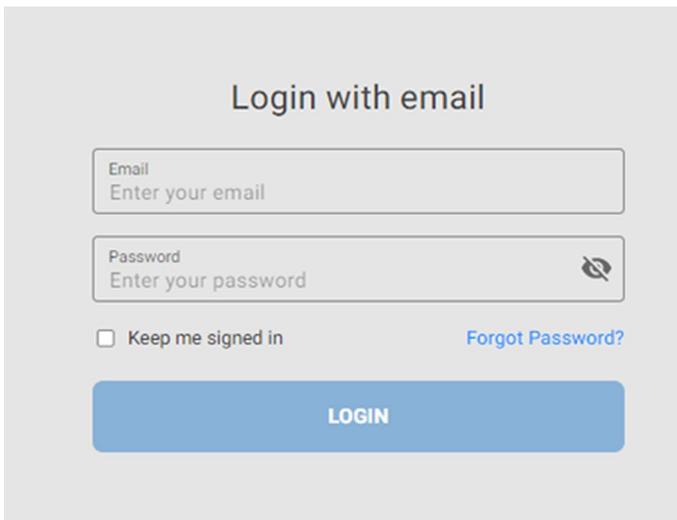
- Country of the agency/manager,
- Agency,
- Type of artist,
- Artist,
- Season's city and country,
- Season's dates,
- Season's number of performances.

The data obtained about the agency and the country of the agency along with the artists is used to create the network where country is the node and the relationship between countries represent artists being exchanged through the intermediary "agents". From the country obtained in the data, the Euclidean distance is calculated and used as a proxy for geographic proximity.

Attribute data.

The scraper is composed in 5 stages:

(1) **Login** To proceed with the log in, the scraper directs the browser to the login website (https://www.operabase.com/login/en) and introduces the credentials of the account where the extraction will be processed. It is important to highlight that the account must have access to the information in the database, however the database won't have visibility that the user is performing the extraction.

(2) **Extract the list of countries** Once logged in for the first time, the scraper takes the browser to the following address: https://www.operabase.com/managers/en. From here, it is possible to extract the complete list of countries where artist agencies are based and the associated artist(s) who completed a performance. If necessary, the list can be created manually, to specify which countries should be extracted. In such case, the countries in the list must exist on the website and must be written in the form they appear on the website. Such list enables to loop over the countries to extract all the information needed from each one of them.

Argentina	China	France	Lithuania	Poland	Switzerland
Australia	Colombia	Germany	Luxembourg	Portugal	Ukraine
Austria	Croatia	Greece	Mexico	Russia	United Kingdom
Belgium	Czech Republic	Hungary	Netherlands	Serbia	United States
Brazil	Denmark	Israel	New Zealand	Slovenia	Venezuela
Bulgaria	Estonia	Italy	Norway	Spain	
Canada	Finland	Japan	Panama	Sweden	

(3) **Country' agency information** Once a country is defined, the scraper takes the browser to the website https://www.operabase.com/managers/ + "country" + / en, e.g. https://www.operabase.com/managers/united-kingdom/en. This website includes the list of agencies that are associated to the country specified, as shown in the screenshot below. In this page, the scraper extracts the hyperlink to the website that leads to each agency in the page and starts looping through the agencies. For example, "APA Artists' Management" redirects the browser to https://www.operabase.com/managers/apa-artists-management-12/en. The last URL is the information extracted.The next stage consists in extracting the list of artists and the information associated to them.

(4) **Agency' information extraction** Each agency's website comprises the list of artists affiliated to the agency itself, and their professional roles. The website is structured in a way that there is a title for each role, and then a table with all the artists who belong to that role. In this stage, the scraper extracts the role, the name of the artists, and the link to the artists' performances. For example:

o   Role: Soprano.
o   Name: Anna Stylianaki.
o   Artist website: https://www.operabase.com/artists/anna-stylianaki-1375/en.

Once completed the first extraction, the scraper loops over the list of all artists' websites.

(5) **Artist information extraction** The last stage lies in extracting the information for each performance (represented by a box in the screenshot below). Each performance has specific information which can be extracted: in the screenshot below, they are highlighted in yellow, and mainly refer to the date(s) of the performance, the city, the country, and the number of performances.

Appendix B

List of countries sending artists abroad, grouped by continent.

North America	South America	Europe	Africa	Asia	Oceania
Canada	Argentina	Austria		China	Australia
Mexico	Brazil	Belgium		Israel	New Zealand
Panama	Venezuela	Bulgaria		Japan	
USA		Croatia			
		Czechia			
		Denmark			
		Estonia			
		Finland			
		France			
		Germany			
		Greece			
		Hungary			
		Italy			
		Luxembourg			
		Netherlands			
		Norway			
		Poland			
		Portugal			
		Russia			
		Serbia			
		Slovenia			
		Spain			

North America	South America	Europe	Africa	Asia	Oceania
		Sweden			
		Switzerland			
		Ukraine			
		UK			

List of countries receiving artists, grouped by continent.

North America	South America	Europe	Africa	Asia	Oceania
Canada	Argentina	Albania	Egypt	Armenia	Australia
Costa Rica	Brazil	Andorra	Morocco	Azerbaigian	New Zealand
Cuba	Chile	Austria	South Africa	China	
Dominican Republic	Colombia	Belarus		Georgia	
Mexico	Peru	Belgium		India	
USA	Uruguay	Bosnia & Herzegovina		Israel	
		Bulgaria		Japan	
		Croatia		Kazakhstan	
		Cyprus		Kyrgyzstan	
		Czechia		Lebanon	
		Denmark		Oman	
		Estonia		Singapore	
		Finland		South Korea	
		France		Taiwan	
		Germany		Thailand	
		Greece		Türkiye	
		Hungary		United Arab Emirates	
		Iceland		Uzbekistan	
		Ireland			
		Italy			
		Latvia			
		Liechtenstein			
		Lithuania			
		Luxembourg			
		North Macedonia			
		Malta			
		Moldova			
		Monaco			
		Netherlands			
		Norway			
		Poland			
		Portugal			
		Romania			

North America	South America	Europe	Africa	Asia	Oceania
		Russia			
		Serbia			
		Slovakia			
		Slovenia			
		Spain			
		Sweden			
		Switzerland			
		Ukraine			
		UK			

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Data availability Data sharing is not applicable.

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