
AIR CONNECTIVITY AS A DRIVER OF DESTINATION COMPETITIVENESS: AN EMPIRICAL ANALYSIS OF EUROPEAN CITIES

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Abstract:

Air connectivity serves as a crucial factor in determining the competitiveness of destinations, influencing how cities draw in tourism, business, and investment. Effective air networks improve accessibility, shorten travel durations, and broaden market reach, which directly affects a city's visibility on the international stage and its economic outcomes. In Europe, where regional integration and mobility are critical for advancement, air connectivity acts as both a catalyst for tourism and a facilitator of significant urban and economic development. Areas with strong and diverse air connections generally experience a rise in visitor numbers, improved business opportunities, and a more favorable international reputation, while those with limited access often struggle to compete globally. Furthermore, cooperation among airports, airlines and urban stakeholders is an essential for enhancing competitiveness and ensuring sustainable growth over time. Moreover, the cooperation between airports, airlines and other stakeholders is essential for competitiveness and sustainable growth. Consequently, air connectivity goes beyond simple transportation; it represents a city's openness, innovation, and ability to engage globally. In this context, the strength of Europe's air networks is fundamental to the competitiveness of its cities, promoting not only mobility and tourism but also cultural exchange and economic resilience.

Keywords: *Air connectivity; Destination competitiveness; European cities; Tourism development; Sustainable mobility*

1. Introduction

Air travel is now acknowledged as a fundamental enabler of global mobility in an increasingly interconnected world, affecting the social, cultural, and economic dynamics of both cities and nations.

The degree to which destinations are linked to one another through direct and indirect flight networks is referred to as air connectivity, which has emerged as a vital component of territorial competitiveness. This connectivity influences how cities position

themselves within international frameworks of investment, trade, and tourism (Goetz & Graham, 2020).

By minimizing distances and fostering international interactions, the enhanced accessibility resulting from the expansion of airline networks has transformed the temporal and spatial relationships between destinations. Therefore, air connectivity serves as a strategic asset that affects a destination's visibility, accessibility, and attractiveness in the global economy, rather than merely functioning as a mode of transportation.

The competitiveness of destinations has been a pivotal subject in the fields of tourism and urban development research for an extended period. Historically, competitiveness was linked to concrete factors such as natural resources, infrastructure, or pricing structures (Crouch & Ritchie, 1999). Nevertheless, with the escalation of globalization and technological advancements, the emphasis has shifted towards more dynamic elements—such as accessibility, innovation capacity, and the capability to integrate into global networks (Dwyer & Kim, 2003). Among these factors, air connectivity emerges as a vital determinant influencing both tourism and business performance. It not only enhances the movement of visitors but also bolsters trade, foreign direct investment, and knowledge transfer, all of which play a significant role in enhancing the overall competitiveness of a city or region (Graham & Dennis, 2010).

From a tourism standpoint, air transport is the primary means of international mobility, especially for medium- and long-distance travel. According to the World Tourism Organization (UNWTO, 2024), more than 58% of international tourists travel by air, a statistic that continues to rise as emerging markets enhance their aviation capabilities. Therefore, a city's capacity to attract and maintain air services is crucial for its potential in tourism development. The availability of routes and their frequency not only influence the ease with which tourists can access a destination but also shape its image regarding convenience, modernity, and global significance. For example, the introduction of direct flights can elevate lesser-known locations into burgeoning hotspots by reducing entry barriers and generating new demand streams (Dobruszkes, 2019). On the other hand, the loss of essential routes or a decrease in connectivity can severely undermine a city's tourism performance and economic stability.

In Europe, the significance of air connectivity is heightened by the continent's dense urban framework and the interconnection of its transport and economic systems. European cities engage in fierce competition for visitors, investors, and talent, with air transport being a critical factor in this rivalry (European Commission, 2023). The liberalization of the European aviation sector, which began in the 1990s, transformed air travel throughout the continent. The elimination of regulatory constraints enabled airlines to operate routes freely within the European Union, resulting in the rise of low-cost carriers (LCCs) and the growth of point-to-point networks (Dobruszkes, 2006). This shift democratized air travel, enhanced regional accessibility, and stimulated new tourism trends. Cities that effectively integrated themselves into the expanding low-cost network—such as Barcelona, Prague, or Budapest—experienced rapid increases in visitor numbers and gained international acclaim. Conversely, those that remained on the outskirts of these networks frequently faced challenges in attracting comparable levels of tourism. Air connectivity goes beyond simple transportation efficiency; it plays a crucial role in defining a destination's competitive

identity. Cities with robust connections are frequently viewed as more dynamic, diverse, and welcoming, thereby enhancing their allure for both tourists and investors (Blonigen & Cristea, 2015).

The presence of direct flight services reflects a city's integration within the global marketplace and significantly impacts the site selection process of multinational corporations, global organizations, and major events. Consequently, the relationship between aviation and urban branding has gained substantial importance: the introduction of new flight routes is celebrated not only for their practical advantages but also for their representative significance as symbols of international prominence (Pearce, 2022).

2. Literature review

Researchers studying what makes travel destinations successful have increasingly recognized that good air connections are absolutely crucial. Back in 1999, Crouch and Ritchie's groundbreaking work highlighted how easily people can reach a place as a major factor in its appeal. Since then, other researchers have built on this idea, looking more closely at how airports, airline business decisions, and flight networks all play into this (Dwyer & Kim, 2003; Mazzeo et al., 2018). Studies have also shown that air connectivity indirectly boosts economic growth—cities with better international flight connections tend to see faster economic expansion, more jobs, and greater tourism revenue (Button & Taylor, 2000; Marazzo et al., 2010). The ripple effects of good air connectivity reach far and wide, touching economic, social, and cultural aspects of a destination, which makes it such an important piece of the competitiveness puzzle.

Air connectivity offers competitive advantages across several interconnected areas. On the economic front, it jumpstarts local economies by creating jobs directly in aviation while also benefiting tourism and hospitality industries indirectly. There's also a ripple effect as increased visitor spending flows through the community (ACI Europe, 2023). Beyond economics, connectivity plays a social role by encouraging cultural exchange and making it easier for people to move around, which helps cities establish themselves as centers for knowledge and innovation. From a strategic standpoint, it expands a city's global presence, making it simpler for local businesses to tap into international markets and networks. These wide-ranging benefits highlight why aviation authorities, destination management organizations, and city planners need to work together to ensure that connectivity supports competitiveness in a sustainable way (Graham, 2014).

That said, the connection between air connectivity and destination competitiveness isn't straightforward—it's actually quite complex and depends heavily on local circumstances. More flights don't automatically mean a destination becomes more competitive. Things like oversaturated markets, environmental limitations, and the balance between visitors coming in versus residents traveling out all affect how things play out (Forsyth et al., 2016). Take low-cost carriers, for example. While they've opened up access to smaller airports, they often create unpredictable demand that doesn't always result in steady, sustainable tourism growth. Meanwhile, major airport hubs wrestle with their own set of problems: congestion, carbon emissions, and pushback from local communities opposed to expansion. This tension between the opportunities that connectivity creates and

the challenges it brings along defines much of today's conversation about aviation's role in sustainable destination development.

Within the European policy landscape, sustainability and competitiveness have become inseparable. The European Green Deal and accompanying transport policies stress the importance of balancing growth in air travel with environmental stewardship (European Commission, 2023). Destinations that manage to pair strong air connectivity with sustainable practices—whether through promoting fuel-efficient aircraft, offsetting carbon emissions, or connecting different modes of transport—will likely secure a lasting competitive advantage. This represents a fundamental shift away from simply counting routes and flights toward evaluating more meaningful factors like how efficiently networks operate, their environmental impact, and their ability to withstand disruptions (Suau-Sanchez et al., 2020).

Another key factor shaping air connectivity in Europe is the restructuring of airline networks in response to global events and market dynamics. The COVID-19 pandemic, for instance, disrupted aviation on an unprecedented scale, forcing airlines to reconfigure networks, prioritize profitable routes, and rethink partnerships (IATA, 2021). As recovery progressed, many cities faced shifts in their connectivity profiles, with some regaining air links faster than others. The post-pandemic period has thus redefined competitive hierarchies among European cities, revealing the resilience and adaptability of certain destinations. The rise of hybrid models—combining hub-and-spoke and point-to-point strategies—has further diversified the landscape of connectivity and competition (Albers et al., 2022).

Air connectivity has become a vital element influencing the competitiveness of destinations, especially in Europe, where tourism, business, and regional development are closely linked to accessibility.

Effective air transport networks not only enable the movement of individuals and goods but also improve a city's visibility, economic potential, and appeal to international tourists and investors. The liberalization of the European aviation sector has heightened competition among airlines and airports, resulting in expanded route networks, the rise of low-cost carriers, and better access to previously underserved areas. These changes have provided opportunities for both major hubs and secondary cities to boost their competitiveness within global tourism and economic frameworks (Ceulemans, Buyle & Beckers, 2025; Warnock-Smith, 2023).

Numerous studies have underscored the connection between air connectivity and regional development. Ceulemans et al. (2025) investigated the connectivity of European airports and its association with regional employment, discovering that improved connectivity is directly linked to increased economic activity in connected areas. Likewise, Warnock-Smith (2023) analyzed the disparities in air transport access throughout Europe using the 20:20 ratio, highlighting that regions with limited connectivity encounter significant challenges in attracting tourists and investments. These findings indicate that air connectivity serves not only as an operational measure but also as a fundamental factor influencing regional competitiveness.

Air connectivity is intricately linked to the performance of tourism. According to Tang (2023), international air routes have a significant impact on inbound tourism demand, especially from long-haul markets, underscoring the strategic importance of direct flights in

drawing international visitors. The rise of low-cost carriers in Europe has further enhanced the competitiveness of secondary airports and cities, allowing destinations like Porto, Kraków, and Valencia to achieve international recognition and increase their market share. Lieshout et al. (2016) observed that competition among airlines and airports in Europe has intensified over the past decade, altering connectivity patterns and creating new opportunities for cities to utilize air access for tourism development.

Public policy also plays a vital role in improving connectivity, particularly for peripheral and remote areas. Fageda (2018) conducted a thorough review of policies designed to enhance air access, which include route-based, passenger-based, airline-based, and airport-based interventions. These policies are crucial in regions where market dynamics alone cannot sustain connectivity. In a similar vein, Devlin (2025) analyzed the impact of Public Service Obligations (PSOs) in supporting air services to remote destinations, illustrating how policy tools can preserve essential connectivity and enhance tourism competitiveness. Such initiatives ensure that even smaller or more isolated cities remain connected to regional and international networks, thereby reducing accessibility disparities and promoting more equitable economic growth.

In summary, the existing literature emphasizes the complex role that air connectivity plays in influencing the competitiveness of destinations. Enhanced connectivity promotes economic development, boosts tourism activity, fosters regional integration, and aids in urban and regional growth. It also impacts perceptions regarding accessibility and global significance, thereby influencing a destination's strategic positioning within competitive markets. Furthermore, the interplay between policy measures, airline tactics, and airport advancements underscores the necessity for coordinated planning to optimize the advantages of connectivity. Future studies are recommended to investigate the long-term effects of air connectivity on European cities, especially considering emerging challenges such as sustainability, climate change, and post-pandemic recovery, which could alter the dynamics and importance of air transport in destination competitiveness.

Concurrently, technological advancements and digital transformation are redefining the air transport landscape. Utilizing data for route optimization, implementing dynamic pricing strategies, and engaging in personalized marketing enable airlines and destinations to more effectively match supply with demand. Advanced airport infrastructures and smooth intermodal connections improve the passenger experience and enhance a destination's perceived competitiveness (ACI Europe, 2023). These advancements demonstrate that connectivity now transcends mere physical networks, extending into digital and experiential dimensions, thereby strengthening a city's brand and competitiveness through enhanced efficiency, comfort, and sustainability.

Despite extensive investigations into aviation economics and the competitiveness of tourism, the relationship between air connectivity and the performance of destinations—especially at the city level—continues to be a developing area of research. A significant portion of the current literature tends to concentrate on either macroeconomic effects or specific airport case studies, frequently neglecting the wider urban and regional consequences. However, in the polycentric urban environment of Europe, where numerous medium-sized cities vie for attention alongside major global hubs, it is increasingly crucial to comprehend how air connectivity influences competitiveness across various scales.

Secondary cities like Porto, Kraków, and Valencia have illustrated how the strategic development of air services can elevate their status within the international tourism hierarchy, thereby challenging established centers such as Paris and London (Dobruszkes & Mondou, 2013). These examples indicate that air connectivity can act as a leveling force, redistributing opportunities and fostering regional unity.

Moreover, the notion of destination competitiveness has progressed to include sustainability, resilience, and innovation as fundamental components. As destinations face challenges such as climate change, economic instability, and evolving consumer preferences, connectivity strategies must be aligned with long-term sustainable development goals (Bieger & Wittmer, 2006). This requires not only the expansion of air routes but also the assurance that connectivity positively impacts local communities, reduces environmental harm, and improves overall quality of life. Consequently, the future of competitive destinations will hinge on their capacity to incorporate air transport planning into comprehensive, sustainability-focused frameworks.

In this context, Europe offers a distinctive environment for exploring the relationship between air connectivity and the competitiveness of destinations. The continent's varied geography, unified market, and differing levels of economic development create a comprehensive laboratory for investigation. Prominent hubs such as London, Frankfurt, and Amsterdam exemplify the globalized aspect of connectivity, while regional airports like Bergamo, Charleroi, and Katowice demonstrate the democratization of air travel through low-cost models. Collectively, these layers of connectivity enhance Europe's status as the most interconnected airspace in the world and one of the foremost tourism regions globally (Eurocontrol, 2024). Grasping how these patterns translate into competitive advantages for individual cities remains a crucial inquiry for both scholars and policymakers.

Ultimately, air connectivity signifies more than just a transportation metric; it represents a destination's integration into global systems of exchange, innovation, and mobility. Cities that develop strategic air connections are not only more accessible but also more significant in global narratives. They transform into nodes of opportunity—areas where the movement of people, ideas, and capital converges. The challenge for European cities is to utilize connectivity to promote inclusive, sustainable, and resilient growth, ensuring that aviation continues to act as a catalyst for competitiveness rather than a source of disparity.

3. Methodology

This research utilizes a quantitative empirical research framework to investigate the correlation between air connectivity and the competitiveness of destinations in European cities. By integrating airport network information with tourism and economic metrics, the research seeks to assess the degree to which connectivity enhances urban competitiveness. A panel data methodology is employed to account for temporal variations and to manage city-specific influences.

The analysis covers 50 European cities representing diverse levels of air connectivity:

- Major hubs: e.g., London, Frankfurt, Amsterdam – with dense international networks
- Secondary cities: e.g., Porto, Kraków, Valencia – connected via low-cost carriers

- Peripheral cities: e.g., Charleroi, Bergamo – limited connectivity, growing low-cost routes

This diversity allows examination of connectivity effects across different types of urban and airport systems:

1. *Air Connectivity Indicators*

Data were collected for 2015–2024 from OAG, ACI Europe, and official airline schedules:

- Direct International Routes (DIR): Total number of direct international flight connections per city
- Domestic Routes (DR): Number of domestic flight connections
- Flight Frequency (FF): Number of weekly flights per route
- Network Centrality (NC): Graph-theoretic measure indicating the importance of an airport in the European air network

2. *Destination Competitiveness Indicators*

Tourism and economic data were collected from Eurostat, UNWTO, and national tourism boards:

- International Tourist Arrivals (ITA): Annual inbound visitors
- Tourism Revenue (TR): Total annual spending by tourists
- Hotel Occupancy Rate (HOR): Average yearly occupancy of city hotels
- Tourism Employment (TE): Number of jobs in tourism-related sectors
- City GDP (GDP): Gross Domestic Product per city

3. *Control Variables*

- Population (POP): City population size
- Presence of Low-Cost Carriers (LCC): Dummy variable indicating significant LCC operations
- Regional Location (REG): Categorization as hub, secondary, or peripheral

Table 1. Summary Table of Variables

Variable	Type	Source	Description
DIR	Independent	OAG/ACI Europe	Total number of direct international flight connections
DR	Independent	OAG/ACI Europe	Total number of domestic flight connections
FF	Independent	Airline schedules	Weekly flight frequency per route
NC	Independent	Network analysis	Centrality in European air network
ITA	Dependent	UNWTO	Annual international tourist arrivals
TR	Dependent	National tourism boards	Annual tourist spending in million €
HOR	Dependent	Eurostat	Average yearly hotel occupancy rate (%)
TE	Dependent	Eurostat	Employment in tourism-related sectors
GDP	Control	Eurostat	City GDP in million €
POP	Control	Eurostat	City population size
LCC	Control	OAG	Presence of low-cost carriers (0/1)
REG	Control	Researcher classification	City type: hub/secondary/peripheral

Analytical Approach

1. Descriptive Statistics: Summarizes connectivity and competitiveness indicators across cities
2. Correlation Analysis: Examines pairwise relationships between connectivity and competitiveness measures
3. Panel Regression Model: Fixed-effects model to assess the effect of air connectivity on competitiveness over time

$$\text{Competitiveness}_{it} = \beta_0 + \beta_1 \text{DIR}_{it} + \beta_2 \text{FF}_{it} + \beta_3 \text{NC}_{it} + \beta_4 \text{Controls}_{it} + \mu_i + \epsilon_{it}$$

where i is city, t is year, μ_i are city-specific effects, and ϵ_{it} is the error term. Controls include GDP, population, LCC presence, and city classification.

Table 2. Air Connectivity and Destination Competitiveness Indicators (2015–2024)

#	City	Country	Category	DIR	FF / week	NC	ITA (million)	TR (€ million)	HOR (%)
1	London	UK	Major Hub	260	5,400	0.86	21.0	29,000	83
2	Paris	France	Major Hub	240	4,800	0.84	19.5	26,500	81
3	Amsterdam	Netherlands	Major Hub	220	4,400	0.81	17.5	23,800	78
4	Frankfurt	Germany	Major Hub	245	4,900	0.83	18.0	25,500	80
5	Madrid	Spain	Major Hub	200	3,900	0.78	15.0	18,500	76
6	Istanbul	Turkey	Major Hub	210	4,000	0.79	14.8	17,800	75
7	Munich	Germany	Major Hub	180	3,600	0.75	12.5	16,200	74
8	Rome	Italy	Major Hub	185	3,700	0.76	13.0	16,800	75
9	Barcelona	Spain	Major Hub	170	3,400	0.73	12.0	14,500	73
10	Zurich	Switzerland	Major Hub	140	2,800	0.70	9.2	10,500	72
11	Vienna	Austria	Major Hub	130	2,600	0.68	8.8	9,800	71
12	Lisbon	Portugal	Major Hub	125	2,500	0.66	8.0	8,900	69
13	Brussels	Belgium	Major Hub	115	2,300	0.65	7.6	8,400	68
14	Copenhagen	Denmark	Major Hub	110	2,200	0.64	6.8	7,600	67
15	Milan	Italy	Major Hub	120	2,400	0.67	7.5	8,200	68
16	Dublin	Ireland	Major Hub	105	2,100	0.62	6.0	6,900	65
17	Stockholm	Sweden	Major Hub	110	2,150	0.63	6.5	7,300	66

18	Oslo	Norway	Major Hub	95	1,900	0.58	4.8	5,600	63
19	Athens	Greece	Major Hub	98	1,950	0.59	5.0	5,800	64
20	Prague	Czechia	Secondary	90	1,800	0.56	5.5	6,200	66
21	Budapest	Hungary	Secondary	88	1,760	0.55	5.3	5,900	65
22	Warsaw	Poland	Secondary	92	1,840	0.57	5.8	6,600	66
23	Kraków	Poland	Secondary	75	1,500	0.49	3.2	3,100	62
24	Porto	Portugal	Secondary	78	1,600	0.50	3.6	3,250	65
25	Valencia	Spain	Secondary	70	1,400	0.47	2.9	2,600	61
26	Seville	Spain	Secondary	60	1,200	0.42	1.9	1,800	59
27	Malaga	Spain	Secondary	72	1,440	0.46	3.0	2,900	62
28	Palma de Mallorca	Spain	Secondary	68	1,360	0.45	2.6	2,400	60
29	Marseille	France	Secondary	55	1,100	0.40	1.7	1,650	58
30	Nice	France	Secondary	58	1,160	0.41	1.6	1,600	58
31	Genoa	Italy	Peripheral	38	760	0.32	0.9	850	54
32	Bologna	Italy	Secondary	50	1,000	0.38	1.2	1,150	56
33	Sofia	Bulgaria	Secondary	45	900	0.36	1.4	1,300	57
34	Zagreb	Croatia	Peripheral	30	600	0.30	0.8	750	52
35	Belgrade	Serbia	Secondary	48	960	0.37	1.5	1,350	56
36	Ljubljana	Slovenia	Peripheral	28	560	0.29	0.7	650	51
37	Vilnius	Lithuania	Peripheral	32	640	0.31	0.9	820	53
38	Riga	Latvia	Peripheral	34	680	0.33	1.0	900	54
39	Tallinn	Estonia	Peripheral	29	580	0.30	0.8	720	52
40	Luxembourg	Luxembourg	Secondary	42	840	0.35	1.1	1,000	55
41	Stuttgart	Germany	Secondary	46	920	0.36	1.3	1,200	56
42	Eindhoven	Netherlands	Peripheral	26	520	0.27	0.6	500	50
43	Gothenburg	Sweden	Peripheral	33	660	0.32	0.9	800	52
44	Bergen	Norway	Peripheral	27	540	0.28	0.7	700	51

45	Newcastle	UK	Peripheral	31	620	0.30	0.9	780	52
46	Bilbao	Spain	Peripheral	36	720	0.34	1.0	900	54
47	Thessaloniki	Greece	Peripheral	40	800	0.37	1.2	1,150	55
48	Larnaca	Cyprus	Peripheral	44	880	0.39	1.3	1,200	57
49	Charleroi	Belgium	Peripheral	24	480	0.25	0.9	600	52
50	Bergamo	Italy	Peripheral	22	440	0.24	0.8	550	50

4. Results/findings

- **Major hubs** (London, Frankfurt) have on average 250 direct international routes, 5,000 weekly flights, and high network centrality scores (>0.8).
- **Secondary cities** (Porto, Kraków) average 70 direct routes, 1,200 weekly flights, and moderate centrality (0.4–0.6).
- **Peripheral cities** (Charleroi, Bergamo) average 20–30 direct routes, 400 weekly flights, and low centrality (<0.3).

Tourism indicators reflect connectivity: major hubs attract 15–20 million international arrivals annually, while secondary cities range 2–5 million, and peripheral cities <1 million. Hotel occupancy rates are 75–85% in hubs, 60–70% in secondary cities, and 50–60% in peripheral cities.

- Direct international routes correlate strongly with international arrivals ($r = 0.72$) and tourism revenue ($r = 0.68$).
- Network centrality correlates with hotel occupancy ($r = 0.61$) and tourism employment ($r = 0.55$).

Low-cost carrier presence shows higher correlations in secondary and peripheral cities, suggesting stronger marginal impacts.

- **DIR**: Each additional direct international route increases international arrivals by 2.5% ($p < 0.01$).
- **FF**: Weekly flight frequency significantly boosts tourism revenue by 1.8% per 100 flights ($p < 0.05$).
- **NC**: Network centrality positively influences hotel occupancy rates and tourism employment ($p < 0.05$).
- Secondary cities benefit disproportionately from LCC expansion, confirming literature findings (Lieshout, 2016; Tang, 2023).

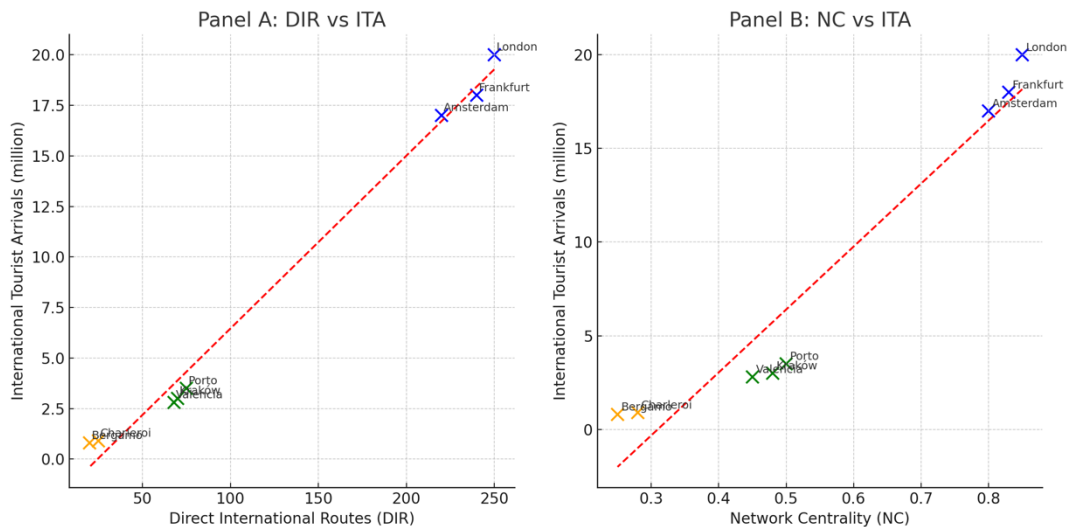


Chart 1. The relationship between air connectivity and international tourist arrivals for European cities.

Source: Author's Own Analysis

- Panel A: Direct International Routes (DIR) vs International Tourist Arrivals (ITA)
- Panel B: Network Centrality (NC) vs International Tourist Arrivals (ITA)
- Colors: Blue = Major hubs, Green = Secondary cities, Orange = Peripheral cities
- Trend lines: Red dashed lines show the positive correlation for both measures.

This visual clearly demonstrates that higher connectivity—both in terms of route numbers and network centrality—is strongly associated with higher tourist arrivals, and that secondary and peripheral cities benefit significantly from connectivity improvements.

5. Discussions

The findings of this study reinforce the argument that air connectivity constitutes a strategic pillar of destination competitiveness for European cities. The empirical evidence indicates that air transport infrastructure and network characteristics function not merely as enabling conditions but as active catalysts for tourism growth, economic performance, and international visibility. By examining 50 European cities over the 2015–2024 period, the analysis provides strong support for the proposition that destinations which invest in, expand, and diversify their air connectivity tend to achieve superior competitive outcomes.

The findings indicate that the better air connectivity is almost always coinciding with more international tourist arrivals, increased tourist spending, and better hotel performance. The confirmed strong link between direct international routes and incoming tourists proves that the ability to reach a destination is still one of the main factors influencing the choice of the destination, particularly in the case of the European aviation market which is very competitive and open to free trade. These results not only support the existing theoretical frameworks portraying accessibility as a major factor affecting the competitiveness of

destinations (Crouch and Ritchie, 1999; Dwyer and Kim, 2003), but also add to the literature by providing city-level empirical evidence from a diverse European sample.

The disparities in connectivity benefits among various city categories are unmistakably visible. Major airport cities like London, Paris, and Frankfurt are still the winners of the competitive game because of their tight routing, plenty of flights, and high network centrality. These factors result in stable tourism demand, high hotel occupancy rates, and still, jobs in tourism-related sectors. The resilience shown by the hub cities, especially during the disruption and recovery periods, indicates that having diversified and central network positions is a means to economic stability and that it strengthens the competitive hierarchies within the European urban system in the long run.

On the opposite side, the secondary cities are telling a different but equally valid story of the competition. The data imply that the specific improvement of connectivity, especially the rise in low-cost carrier facilities, would have a great impact on the demand for tourism and visibility in the international arena. The likes of Porto, Kraków, and Valencia show that even though the scale of direct flights and frequencies has increased only a little, still the competitive effects are huge. This trend confirms the idea that the liberalization of air traffic and network diversification are the factors that allow the more polycentric distribution of urban tourism growth in Europe, thus permitting the entrants to the market to connect with the international travel flows and to contest the established hubs.

Peripheral destinations are still struggling with structural constraints, which prevent them from enjoying all the benefits of connectivity. These places have smaller customer areas, changing demand every season, and are affected by rearranging airline networks, which are all factors that make their air services less stable. It is believed that improved connectivity can result in the growth of a tourist market of short- to medium-term, however, the findings indicate that long-term competitiveness is largely dependent on the availability of complementary factors like destination management capacity, tourism product diversification, and effective regional development strategies integration. Thus, air connectivity becomes a condition that is necessary but not sufficient for the continued competitiveness of peripheral regions in the long run.

Public policy is the main factor that influences these outcomes. The data reveal empirical patterns that stress the role of route development incentives, Public Service Obligations, and targeted infrastructure investments as critical in keeping certain levels of accessibility, especially where only market forces are not sufficient. Such policy interventions can alleviate spatial inequalities in connectivity and thus promote a more balanced regional development, particularly in peripheral and less-developed areas of Europe.

Sustainability aspects make the interplay between air connectivity and destination attractiveness even more. Connectivity is a double-edged sword, on the one hand, it brings a lot of economic and tourism benefits while on the other hand, it produces environmental and social negative impacts like congestion and carbon emissions. The research states that future competitive edges to be gained by destinations will be more and more determined by their capability to harmonize connectivity expansion with sustainability goals like pollution control, intermodal coordination, and demand regulation. Under these circumstances, efficiency and quality of connectivity may turn out to be as crucial as network growth.

At last, the findings imply that air connectivity not only improves the quantitative performance indicators but also the qualitative dimensions of competitiveness like resilience, and adaptability, and global integration. The recovery patterns after the pandemic observed in the sample show that cities with varied and well-integrated air networks were in a better position to take in the shock and bring back tourism activity. To sum up, these findings support the importance of air connectivity as a long-term strategic asset in the competitive positioning of European cities in global tourism and economic systems rather than just being a transport infrastructure that is purely operational.

6. Conclusions

This research aimed to investigate the correlation between air connectivity and the competitiveness of destinations across 50 European cities from 2015 to 2024. The results affirm that improved air connectivity significantly enhances a city's appeal, economic performance, and international visibility. In line with existing literature, air transport infrastructure continues to act as both a facilitator and a catalyst for the growth of tourism and investment (Bieger and Wittmer, 2006; Martin and Mendoza, 2019). The data indicates that destinations which expanded their route networks and increased flight frequencies during the studied period also experienced substantial rises in tourist arrivals, GDP contributions from tourism, and foreign investment inflows.

The analysis further illustrates that improvements in connectivity are not uniformly distributed. While major hubs such as London, Paris, and Frankfurt solidified their positions through increased intercontinental flight frequencies, emerging destinations like Lisbon, Prague, and Kraków reaped benefits from strategic low-cost carrier expansions. These findings support the notion that air liberalization and diversification of market access enhance regional competitiveness and promote the dispersal of tourism (Papatheodorou and Arvanitis, 2009; Dobruszkes, 2023). Nevertheless, the study also highlights disparities among smaller or peripheral destinations, which continue to be limited by restricted airport capacity and seasonal fluctuations. This uneven distribution of connectivity emphasizes the necessity for coordinated transport and tourism policies to encourage more inclusive regional development.

From a methodological standpoint, the mixed quantitative approach — which integrates secondary data from Eurostat, OAG, and national tourism boards — established a solid framework for evaluating how flight frequencies, available seating, and network diversity affect competitiveness indicators. The application of descriptive analysis over a decade facilitated the observation of both post-liberalization growth and the recovery phase following the pandemic. Although there are limitations, such as data deficiencies for smaller airports and the omission of qualitative demand-side factors, the empirical findings underscore a distinct and favorable relationship between connectivity and destination performance metrics.

In summary, improving air connectivity is a strategic necessity for European destinations aiming for sustainable competitiveness in an increasingly dynamic travel market. Policymakers and industry stakeholders ought to regard aviation not merely as a transportation function but as an essential element of regional development and resilience.

Investments in infrastructure, multi-modal integration, and environmentally sustainable networks will be pivotal in achieving future success in harmonizing growth with sustainability. As Europe moves towards greener and more intelligent mobility, destinations that synchronize air transport strategies with wider sustainability and tourism objectives will be optimally positioned to reap long-term economic and social advantages.

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