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Title: Sustainable Tourism in Spain:

A Comparative Analysis of Economic, Social and Environmental Impacts in Madrid, Barcelona, and Málaga.

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Abstract

Tourism is a key component of the Spanish economy, contributing to 12.6% of national GDP and employing over 20% of the Spanish population. However, record-breaking tourist figures of 93.8 million international visitors in 2024 has heightened concerns around overtourism, housing prices, environmental degradation and resident dissatisfaction in the matter. This study examined the degree to which tourism contributes to or hinders sustainable development in Spain, through looking at a comparative analysis of Madrid, Barcelona and Málaga.

A mixed-methods approach was chosen, combining both quantitative secondary data taken from Spain's National Statistics Institute (INE), Exceltur and the regional autonomous governments with qualitative secondary data from academic literature. The analytical framework is based around the three pillars of sustainable development: economic, social and environmental.

The findings from the case study reveal several takeaways. Madrid demonstrates the most balanced tourism model, with low tourism GDP dependency of 8.7%, moderate seasonality (1.45:1), an emissions reduction of 21.82% and a visitor-to-resident ratio of 7.1:1. Barcelona's profile was different where a 65% reduction in emissions was overshadowed by severe social pressures such as growing hostility and tourism-phobia which is driven by a visitor-to-resident ratio of 13.6:1. Málaga occupied the most concerning city of the three. The city recorded an extreme seasonality ratio of 14.7:1, a 163% housing price increase, rising greenhouse gas emissions of 51.9% and huge protests with 15,000 locals taking part.

The study concludes that each city has a different trajectory when it comes to tourism and the differ depending on governance, economic diversity and carrying capacity management. Madrid is an example of how sustainable urban tourism is attainable. Málaga demonstrates a city that has unchecked, tourism-dependent growth requiring urgent policy intervention.

Key Words
Sustainable Tourism, Overtourism, Carrying Capacity, Housing Affordability, Sustainable Development, Seasonality, Spain

Resumen

El turismo es un componente clave de la economía española, ya que representa el 12,6 % del PIB nacional y da empleo a más del 20 % de la población española. Sin embargo, las cifras turísticas récord de 93,8 millones de visitantes internacionales en 2024 han acentuado la preocupación por el exceso de turismo, los precios de la vivienda, la degradación medioambiental y el descontento de los residentes al respecto. Este estudio examinó en qué medida el turismo contribuye o dificulta el desarrollo sostenible en España, mediante un análisis comparativo de Madrid, Barcelona y Málaga.

Se optó por un enfoque de métodos mixtos, combinando datos secundarios cuantitativos extraídos del Instituto Nacional de Estadística (INE), Exceltur y los gobiernos autonómicos con datos secundarios cualitativos procedentes de la literatura académica. El marco analítico se basa en los tres pilares del desarrollo sostenible: económico, social y medioambiental.

Las conclusiones del estudio de caso revelan varias ideas clave. Madrid presenta el modelo turístico más equilibrado, con una baja dependencia del turismo en el PIB (8,7 %), una estacionalidad moderada (1,45:1), una reducción de las emisiones del 21,82 % y una proporción de visitantes por habitante de 7,1:1. El perfil de Barcelona fue diferente, ya que una reducción del 65 % en las emisiones se vio eclipsada por graves presiones sociales, como la creciente hostilidad y la fobia al turismo, impulsadas por una proporción de visitantes por residente de 13,6:1. Málaga ocupaba el lugar más preocupante de las tres ciudades. La ciudad registró una ratio de estacionalidad extrema de 14,7:1, un aumento del 163 % en el precio de la vivienda, un incremento de las emisiones de gases de efecto invernadero del 51,9 % y enormes protestas en las que participaron 15 000 vecinos.

El estudio concluye que cada ciudad sigue una trayectoria diferente en lo que respecta al turismo y que estas difieren en función de la gobernanza, la diversidad económica y la gestión de la capacidad de acogida. Madrid es un ejemplo de cómo se puede lograr un turismo urbano sostenible. Málaga es un ejemplo de ciudad con un crecimiento descontrolado y dependiente del turismo que requiere una intervención política urgente.

Palabras Claves

Turismo sostenible, Sobreturismo, Capacidad de acogida, Asequibilidad de la vivienda, Desarrollo sostenible, Estacionalidad, España

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1. Introduction

Tourism represents one of the key drivers of the Spanish economy with a record-breaking 93.8 million international visitors to Spain in 2024 alone (INE, 2025). Spain is not only renowned for its international tourism, but also for its domestic tourism too, with over 163 million domestic travellers in 2024, although this figure is lower than pre-pandemic levels when domestic travellers in Spain exceeded 170 million (Statista, 2025).

The economic significance of tourism is highlighted further when we look at the impact it has on employment. It is estimated that over 20% of Spain's population employed directly or indirectly in the tourism sector (Domínguez et al., 2013), highlighting the strong economic reliance on tourism related activities.

With tourism bringing such benefits to the country, concerns are raised over Spain's dependency on tourism and its damaging effects on society and the environment. Therefore, a sustainable tourism model is needed for Spain's economy to grow. This study will aim at understanding Spain's tourism sector and investigating whether Spain adopts a sustainable tourism model.

Sustainability Challenges

The concept of tourism should align with the sustainable development model, ensuring that the needs of the future must not be compromised by our current generation today (Pigram & Wahab, 2005). Tourism is viewed as the central challenge that must be addressed for it to be sustainable. It must be noted that the rate of tourism growth carries the seeds for its own destruction.

Whether it is the vibrant city of Madrid, the tourism-heavy Barcelona or the sun-soaked Málaga, tourism remains an essential sector across Spain. Yet the question remains whether the tourism sector can be sustainable in the long-term. With a record number of 93.8 million international tourists visiting Spain in 2024 alone, the pressures surrounding overtourism have never been more prevalent and alarming (INE, 2025). Overtourism represents the phenomenon where destinations where the locals and visitors feel that there are too many tourists in an area, so much so that the quality of life and environment has deteriorated because of it (Goodwin, 2025). Overtourism acts as a catalyst for several linked challenges that harm the long-term viability of Spain's tourism model. One the more severe of these challenges would be seasonal congestion. Seasonal congestion in the context of tourism is defined as a "Temporal imbalance in the phenomenon of tourism, which may be expressed in

terms of elements such as numbers of visitors, expenditure of visitors, traffic on highways and other forms of transportation, employment and admissions to attractions" (R. W. Butler, 2001). This is evident in Spain where tourism is heavily dependent on the summer months, which puts pressure on infrastructure, public transport and crucial services. The pressure put on infrastructure results in environmental degradation.

Another consequence of overtourism is the housing crisis that it has created. The ongoing availability of short-term rental accommodation platforms such as Airbnb has reduced long-term availability of residential housing in Barcelona and Málaga. Research shows that from the average neighbourhood in Barcelona; Airbnb activity has increased rents by 1.9% and transaction prices by 4.6%(Garcia-López et al., 2020). This feeds into the resident dissatisfaction that arises in the form of protests and demonstrations against tourism, in the phenomenon known as "Tourism-phobia".

These challenges together, suggest complexity within the tourism sector. Spain undoubtedly is heavily reliant on its tourism sector performing well. This study seeks to investigate the extent of the tourism sector in Spain, its flaws and its strengths, and if it is sustainable comparing the three cities of Madrid, Barcelona and Málaga.

Justification for choosing Madrid, Barcelona and Málaga

The reasoning for choosing the three specific cities of Madrid, Barcelona and Málaga is to get a good understanding of the different types of tourism. Madrid represents business and cultural tourism; Barcelona showcases a European tourism heavy hotspot and Málaga displays a tourism destination predominantly focussed on sun-tourism. As this study covers the depth of these cities in more detail, a comprehensive insight into how the tourism industry effects the cities will be gained. This will allow for the formation of insights and a comparative analysis of the three cities in chapter five.

Research Qn

To what extent does tourism contribute to or hinder sustainable development in Spain, with a comparative focus on Madrid, Barcelona and Málaga.

Objectives

- To analyse the core principles of sustainable development and sustainable tourism. This will help me to grasp the concept of sustainable tourism and establish a theoretical framework for evaluating tourism impacts in Spain.
- To compare the economic impacts of tourism in Madrid, Barcelona and Málaga. This objective will focus on how tourism drives national GDP and employment in these cities across Spain. It will also examine housing affordability in these cities.
- To compare socio-cultural impacts of tourism in Madrid, Barcelona and Málaga. This will help to figure out the impact tourism has on the local culture in these cities along with how it affects the community well-being and residents' quality of life.
- To evaluate the environmental impacts of tourism in Madrid, Barcelona and Málaga. This objective will aim to explore how greenhouse gas emissions and a city's carry capacity contribute to tourism's environmental footprint in Spain.

Interest of topic/Relevance

Tourism's relevance nowadays not only as a global economic powerhouse, but also as a critical centre-point for sustainability concerns that shape societies, economies and environments. However, it must be noted that the rapid growth of tourism has intensified challenges such as overtourism and resource depletion. This positions tourism at the heart of the global sustainability debate. The move towards a more sustainable tourism model is now seen as imperative, associated with the United Nations Sustainable Development Goals (SDG's). A comprehensive understanding of the tourism model in Spain will be developed from this study.

Structure of the Thesis

This thesis will follow a mixed-methods, comparative case study design to analyse economic, social and environmental sustainability of tourism in Madrid, Barcelona and Málaga. The approach will be a combination of qualitative data from academic literature and secondary reports including quantitative statistical data. Chapter one will be an overall introduction to the concept of sustainable tourism and the relevance for the selection of my research question. Chapter two will highlight academic qualitative and quantitative data relevant to the study, encompassing three different pillars of the argument: economic, social and environmental factors. Chapter three will outline the case study design, the data sources and potential limitations of the study. The data is organized into the respective cities in chapter

four, while chapter five will compare the data collected from chapter four. This method enables a comprehensive assessment of how tourism impacts differ depending on the urban setting and fosters the creation of targeted policy suggestions by mixing quantitative trends with qualitative observations.

2. Theoretical Framework

This section will introduce the academic literature review. This will demonstrate academic understanding of the tourism sector in terms of sustainable tourism and the economic, social and environmental effects tourism creates.

2.1 Sustainable Development and Sustainable Tourism

Sustainable development consists of comprising three different dimensions or pillars: economic, social and environmental. (Emas, 2015). It is universally defined as "Development that meets both the needs of the present without compromising the ability of future generations to meet their needs" (Mitlin, 1992, p. 8). This definition laid the foundation for the Sustainable Development Goals (SDGs) that were introduced by the United Nations in September 2015 with the goal of combatting global poverty, inequality and environmental issues by 2030 (UN, 2015).

The origin of the understanding of the concept derives from the traditional "Brundtland Report" from 1987. According to this report the South's extreme poverty and the North's unsustainable patterns of consumption were the main factors affecting the world's environmental problems (United Nations & WCED, 1987). However, this is not the only thing that is highlighted in the report, the role of the international economy, population and human resources, food security, energy and legal principles for environmental protection are all listed linking back to the topic of sustainable development. All these aspects allow individuals and organisations to gain a broader understanding of sustainable development. As a result, the document lays the foundations for much of the sustainability literature that followed it.

Since it was first introduced, the idea of sustainable development has gone through several stages, with governments, businesses and organizations all putting more emphasis on sustainability in their policies and practices nowadays. While the core principles remain consistent, sustainable development itself adapts to changing global challenges. A contemporary understanding of the concept and its objectives is reflected in the Sustainable Development Goals of 2015. The SDG's highlight a comprehensive framework that addresses critical global issues such as poverty reduction, inequality, and climate change, with the overall aim of achieving sustainable development by 2030 (UN, 2015). Former United Nations Secretary General at the time Ban Ki-Moon commented on the six elements

shaping the goals: dignity, people, prosperity, planet, justice, and partnerships (Fong & Roy, 2023).

Sustainable tourism is defined by the United Nations as “Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities” (GSTC, 2025). It must be noted that the key aspects of tourism revolve around economic, social and environmental impacts. If these three dimensions can be balanced effectively, sustainable tourism will be achieved in the long-term. It is heavily linked to sustainable development which I touched on earlier.

The concept of a sustainable tourism model is built on a core foundation of three considerations: sustaining economic growth, protecting socio-cultural heritage and maintaining environmental responsibility.

Tourism can contribute to long-term economic growth. Governments across the globe prioritize tourism because it helps generate income, fosters local domestic products and services and supports emerging markets (León-Gómez et al., 2021). This highlights the economic importance of tourism to organizations and countries alike. The article titled “Sustainable Tourism Development and Economic Growth” encapsulates the robust link between sustainable tourism and economic development of destinations. The possible gains are mentioned, however the importance of ensuring tourism is integrated with environmental protection and social considerations must not be taken for granted.

Tourism has potential when combined with heritage. As (Nugraheni et al., 2020) highlighted, the synergy between tourism and heritage can lead to significant conflicts that result in “negative socio-cultural impacts” if not managed correctly. The social element of sustainable development, which encompasses cultural effects, is the least developed according to their thorough review and analysis. This aspect cannot be overlooked if sustainable tourism is desired. According to the research, social sustainability is a dynamic term that requires a multidisciplinary knowledge from disciplines like political sociology and governance to appropriately address how tourism affects social fairness, cultural integrity, and community well-being. As a result, to limit the damage and increase advantages for host communities, planners and practitioners must actively include these fluid social factors into development strategies to manage heritage tourism efficiently.

The tourism sector is reliant on natural and cultural assets that a destination has at its disposal. However, its operations, such as transportation and visitor actions can degrade these assets through greenhouse gas emissions, resource overconsumption and disruption of the ecosystem (Grizane, 2025). These environmental impacts are strongly linked to the current global climate crisis. This study demonstrates how crucial it is to address tourism's resource consumption, ecological strain and carbon footprint to maintain the sector's long-term survival in line with global environmental stewardship.

2.2 Economic Impacts of Tourism

The impact of tourism on a country's economic growth and Gross Domestic Product (GDP) is mainly positive, as it channels through both direct and indirect avenues. Directly, tourism injects foreign exchange earnings and creates jobs in core sectors like hospitality, transportation, and attractions, thereby increasing national income. Indirectly, tourism fosters growth in industries like agriculture, construction and retail through aggregate demand of the supply chain. It must be noted that this contribution that tourism has is dependent on a country's economic structure. "The tourism-led growth hypothesis" is stronger in economies with diversified sectors that can effectively capture and circulate tourism spending (Ivanov & Webster, 2011). In 2024, travel and tourism's contribution to global GDP amounted to USD$10.9 trillion which accounted for 10% of the global economy (WTTC, 2024). This statistic is evidence that the tourism sector can have a huge impact on an economy and its GDP. More specifically when we look at Spain, tourism activity reached €220.699 Billion in 2024, accounting for 12.6% of the country's GDP(INE, 2024).

Tourism has an direct impact on employment levels in recent years, with over 357 million jobs globally supported through the tourism sector in 2024 (Economic Times, 2025). In fact, it is believed a decade on from now, the tourism sector is expected to account for one in every three new jobs that are created globally. It will create one-to-one consumer facing jobs in hotels, restaurants, tour operators and attractions such as theme parks, museums and historical sites. Furthermore, alongside this, it creates indirect employment too that aids in the supply chain process, for example jobs in agriculture and construction. The economic activity creates induced employment. Induced employment is the creation of employment that arises from workers in direct and indirect tourism spend their wages in the local economy (Stratford Analytics, 2025). This "Ripple effect" drives economic growth in a country, supporting domestic employment even in rural areas.

Dependency Theory is a macro-economic viewpoint that was originally developed by scholar Andre Gunder Frank in the 1950s and 1960. This theory is a macro theoretical framework that explores the economic disparities between countries, emphasizing the relationships between developing and developed countries (Da Silva, 2021). The theory establishes the structure of the global capitalist economy as the cause for the disparity in wealth between developed and developing countries. This theory is prevalent in the tourism sector due to developing countries becoming dependent on foreign owned assets and capital from core countries. Key factors are listed in the book titled "Theories and Models in Tourism and Hospitality". It highlights the discovery of mineral resources in Africa as an example of one such factor. Dependency Theory exists where raw materials and minerals are extracted from Africa at lower prices from developed countries then sold back to African countries at higher prices (Uysal, 2026). The paper also points out the impact colonialism had on Africa and how it stagnated the development of many African nations. In terms of dependency theory, tourism in the developing world can establish patterns of inequality and dependence on foreign capital (Britton, 1982). This effect generates more income for the developed world, leading to less economic benefits for the domestic economy, which in turn is very harmful in the long run.

An economic leakage constitutes the proportion of the total tourist expenditure in a county that is diverted from the circular flow of income within an economy (Chaitanya & Swain, 2024). Essentially, it describes how money can leave a local economy, reducing the positive impact spending can bring to an economy. Within the tourism sector, an economic leakage can drastically weaken the industry's impact to local communities and economic development. A leakage prevents money being spent on domestic goods and services. Therefore, these leakages halt economic development and adversely impact the local economy in a country. These leakages happen because of a variety of different factors; import dependency, ownership structures and employment mechanisms (Sustainability Directory, 2026). Import dependency relates to where hotels, restaurants and other tourist service providers import goods from international suppliers due to a lack of local production capacity. Ownership structures see profits being repatriated to countries abroad. Similarly, with employees, expatriate workers remit a large amount of their salaries abroad. In accumulation, these leakages result in a curtailed multiplier effect (Kamuzora & Jeyacheya, 2019). Understanding economic leakage is therefore not just an accounting principal but an imperative diagnostic tool for sustainable tourism in a country. High leakage rates

demonstrate a structural failure in the tourism model, exposing a rift between the industry's operations and the fundamental sustainability principles of local retention, community benefit, and the development of robust, self-determined destination economies.

2.3 Social Impacts of Tourism

The relationship between both tourism and residents' quality of life is a critical aspect of sustainable tourism research. Ramkissoon and co-authors' Nekmahmud and Muzaffer, results from applying Structural Equation Model (SEM) on a sample group of 350 residents advocate that perceived social impacts positively affect trust in local government policies (Ramkissoon et al., 2025). This attachment has a positive influence on prosocial behavioural traits amongst residents. Consequently, it increases residents' overall quality of life, linking to the UN's Sustainable Development Goals. Although the study acknowledges that there is a predominantly positive social impact with tourism, quality of life results is measured by residents' place attachment and engagement in pro societal behaviours. Liveability theory is a framework which explains the degree to which a living environment impacts human well-being (Veenhoven, 2021). This theory proposes that tourism activity can impact contextual factors including employment opportunities and overcrowding. Research on the end of Bulchand-Gidumal from 197 European regions demonstrates that tourism development is associated with higher residential well-being (Bulchand-Gidumal et al., 2025). This study found the relationship between well-being indicators and tourism development to be positive in general, however it depends on the economic structure of a region. These findings collectively pinpoint tourism as a positive catalyst for the quality of life of residents, however it is dependent on how it is managed and integrated into a region.

In destinations heavily dependent on tourism, the correlation between tourism development and housing prices has emerged as an immediate concern, often at times provoking processes of gentrification that modify urban communities. A study conducted by Antonio Miguel Martins and Susana Cró highlights this concern. The study focuses on eight tourism-dependent countries: Australia, Croatia, Cyprus, Greece, Iceland, New Zealand, Portugal and Spain, between 2000 and 2018 (Cró & Martins, 2024). The study employed a Vector Error Correction Model (VECM) to analyse the coexisting correlation between tourism activity and housing prices across these eight countries. Evidence from the Grander causality tests confirm that tourism drives housing prices in these countries, quantitively a 10% increase in international tourism to Spain increased housing prices by 1.31% in the short run. These prices are a huge factor in tourist-led gentrification, which is the process which involves the

transformation of urban neighbourhoods from low to high value, often increasing property prices and living costs for locals (Picardo, 2025). These results can carry economic and social implications for residents living in an area. Gentrification results in major improvements to local infrastructure and services, however it also leads to the displacement of poorer residents, replacing them with wealthier newcomers. As tourism continues to contribute to economic growth, it also damages societal standards by creating negative externalities such as reduced housing affordability, resident displacement, and the erosion of community togetherness. Thus, the study warns that without sustainable tourism laws that balance economic profits and the well-being of residents, travel destinations run the risk of a "Tragedy of Commons" in which the resources that tourism depends on are deteriorated due to overuse, leaving behind communities that have lost their authentic characters that attracted tourism in the first place.

Tourism-phobia describes a phenomenon in which segments of the local population, feeling negatively impacted by tourism, begin to express hostility toward visitors (Sanchez-Bayon & Daumann, 2025). It usually occurs with overtourism or when the costs of tourism such as unaffordable housing outweigh the benefits the locals receive. The act of tourism-phobia is seen through protests, demonstrations or attacks. Sánchez-Bayón and Daumann (2025) provide an exploratory model to help understand the phenomenon of tourism-phobia throughout a structural-cognitive model shown for the Canary Islands. It demonstrates how local resident resentment transfers into organized action. The text exemplifies how complex social phenomena such as overtourism and tourism-phobia are present in Southern European countries.

Overtourism refers to a phenomenon where the capacities of a destination in question are overused and where the solutions are beyond the power of state control (Sanchez-Bayon & Daumann, 2025). It must be noted that tourism-phobia and the effects it brings comes because of overtourism. The case study concluded that overtourism incurs substantial costs for residents in the Canary Islands. These expenses included infrastructural and socioeconomic externalities. Housing availability of residents on the islands decreased due to the growth of rental websites like Air BnB; between 2015 and 2020, vacation rentals in Tenerife's Adeje and Arona areas increased by 60%. Roads, public transportation and hospitals are unable to meet the demands and pressure from both the local public and visitors due to overstretched public infrastructure. Therefore, the Canary Islands case study illustrated a critical bottom line. The personal costs of overtourism; manifested by reduced housing

availability and an eroded quality of life, overshadow the perceived benefits of tourism for the local Canarian residents which fuels collective opposition.

2.4 Environmental Impacts of Tourism

The consumption of water and energy resources, combined with the generation of solid waste, represents one of the most direct environmental pressures exerted by tourism. Sunlu (2003), explores this complex relationship between the environment and tourism, explaining how activities such as infrastructure construction and the development of hotels, restaurants, and golf courses can cause major adverse effects. His foundational analysis of tourism in the Mediterranean region revealed that tourism can lead to water overconsumption, with tourists using up to 440 litres of water per day, nearly double that of local residents (Sunlu, 2003).

In the decades following Sunlu's research, these pressures have become more intense and alarming. Contemporary research from the University of Zagreb analysing 27 EU countries between 2014 and 2024 confirms this trend. It looked at the impact of urbanization on environmental degradation. The study found that international tourist arrivals have a statistically significant non-linear effect on environmental degradation in the Mediterranean (Srce, 2025). This statistic suggests that the relationship changes as tourism develops. This study acts as evidence to underscore the balance of tourism growth. The evidence from this study highlights the fundamental role of government regulations in combatting environmental damage and safeguarding a sustainable tourism model for future generations. Without these government policy interventions, the resources that tourism depends on risk becoming depleted.

While exact water consumption data was not readily available across Madrid, Barcelona and Málaga for this study, the wider principle of resource overconsumption remains relevant to assess the environmental impacts of tourism on each city.

It is evident that tourism, especially international tourism has had a significant impact on environmental issues such as climate change. “According to UNWTO-UNEP-WMO, tourism CO_2 emissions would increase by 130% from 2005 to 2035”(Al-Mulali et al., 2015). Evidence from a data study of the top 48 international tourist destinations around the world between 1995 and 2009 suggests that international tourist arrivals had a statistically significant positive long-term impact on transport CO2 emissions across Africa, North America, South America and Asia. When compared to other variables such as urbanization, energy consumption and economic activity, tourism was the key driver of all these emissions.

It must be noted that European countries were exempt from this pattern as more than three-hundred regulations had been introduced since the 1990's. Spain's tourism model built on long-term viability relies not only on international visitors but also ensuring that the infrastructure can withstand the growth without depleting the environment. Therefore, transport emissions showcase one of tourisms most severe environmental threats while also being one of the most addressable ones.

The development of tourism exerts serious pressure on urban environments. A comprehensive study on six key European cities: Amsterdam, Barcelona, Berlin, Copenhagen, Lisbon and Munich, demonstrates how local residents perceive visitor pressure in urban contexts (Koens & Postma, 2015). It concluded that residents across all six cities outlined the key stress indicators as the overstretching of city infrastructure including overcrowded public transport systems and streets. In Barcelona, residents reported that public spaces such as playgrounds were occupied by tourists which forced changes in daily routines. Meanwhile in Amsterdam, the rise in short-term rental accommodation was shown as a driving factor in population change, pushing locals out of their own neighbourhoods. However, despite these pressures, residents across the six cities had an overall positive outlook on tourism with 54% of residents supporting tourism growth at city level. This study concludes that effective management of urban pressure requires integrated approaches involving multiple policy domains: transport, housing and public space. Most importantly, these solutions cannot be applied altogether. They must be tailored to the specific context of neighbourhoods, understanding that pressures in one city may differ significantly from another city.

The problems associated with water consumption and urban pressure point toward a vital concern to the sustainable tourism model, carrying capacity. Carrying capacity refers to the maximum number of people an area can assist and maintain before the negative implications start to outweigh the positive implications (Sustainability Directory, 2024). The concept of carrying capacity underscores the environment as a natural resource with a limit that it can sustainably support. Once this threshold is passed, the cultural features that attract tourists to an area begin to deteriorate, creating a glum cycle of decline.

Carrying capacity is not a single number, but instead a multidimensional framework (Yusoh et al., 2021). In fact, carrying capacity functions simultaneously across physical, social and environmental dimensions and therefore is a key indicator into evaluating tourism models in

a country. Physical carrying capacity relies on what was mentioned previously regarding to the ability that an area must accommodate visitors which is determined by infrastructure and man-made facilities. Environmental carrying capacity with tourism refers to the threshold beyond which natural ecosystems start to deteriorate under increased levels of tourism. Social carrying capacity measures the effects that communities have once the threshold is passed and where the quality of life worsens for these communities due to tourism (Cochran, 2024). All these dimensions of carrying capacity are relevant to the main case study which will be laid out in chapter three.

Miguel Cifuentes investigated these dimensions of carrying capacity in practice. He observed the multi-layered framework in 1992 as a three-step approach where the levels of carrying capacity become more restrictive as it moved from Physical to Real and Effective. The model shows that carrying capacity is not only a static figure, but rather a dynamic one that is characterized by real time conditions that change constantly (Cifuentes, 1992). This is prevalent in Spain as the nation relies on a heavy concentration of tourism in the summer months. In Cifuentes case this means that the same destination may struggle to operate within it carrying capacity during summer but have no problem operating within it in the winter.

Key learnings from Butler (1980) and Cifuentes (1992), help to tie together the idea of carrying capacity in tourism. Bulter argues through his Tourism Area Life Cycle (TALC) Model that tourist destinations evolve through several different stages, with the final stages being stagnation, decline and rejuvenation. In his theory, Butler warns that destinations that exceed their carrying capacity thresholds pose a severe risk of entering the stagnation and the decline phase (Butler, 1980).

2.5 Urban Tourism Governance

The governance of Spain's tourism model has changed considerable since the 1970's. Spain moved from a dictatorship under Francisco Franco into now a more decentralised system of seventeen autonomous regions known as "Comunidades". This falls under a Quasi-federal system whereby each autonomous region has its own laws around tourism (Pearce, 1997). Under Franco, tourism policy was controlled entirely by the government with the government having direct control over the tourism sector and its development. The change to democracy in the 1978 Constitution fundamentally altered the tourism model. However, despite this, according to Pearse (1997), this political change in authority created conflict in terms of strategic planning between regional bodies and the national tourism organization of Spain. Things improved in 1992 following the passing of the "Plan Futures" policy document by the

constitution. It allowed for a competitive frame of tourism while compiling social, cultural and environmental considerations. The historical nature of Spain is related to the contemporary governance challenges mentioned prior in this study. The system remains fragmented with no real central coordination meaning cities struggle with challenges such as overtourism.

The urban governance frameworks established the autonomous communities of Madrid, Catalonia and Andalucía contain robust regulations for tourist accommodation, housing policy and environmental standards. At the same time, policy coordination between national and regional authorities remains a challenge, particularly issues such as short-term rental regulation and aviation emissions. This complexity is relevant to the case study analysis that will be conducted in chapter four, as each city operates within a respective regional governance context.

Urban tourism governance collectively looks at the frameworks, models and policy instruments used by local and national authorities to balance the impacts of tourism on destinations. It prioritizes the mix of both the influx of tourists and the protection of environmental assets on host communities (Koens et al., 2025). This links into the Sustainable Development Goals and the UNWTO sustainable tourism guidelines. In fact, tourism can directly and indirectly contribute to all seventeen of the SDG's with particular goals that are linked at growing tourism in a sustainable manner (Andrades, 2024). For example, this is seen with goals 11, 12 and 13. SDG 11 calls for a future of sustainable cities and communities, preserving cultural heritage in the process. SDG 12 focuses on the responsible consumption and production and providing a framework that monitors sustainable development with tourism. Finally, SDG 13 calls for climate action and for contemporary stakeholders in todays' society to reduce tourisms carbon footprint (United Nations, 2015). The extent to which Spanish cities Madrid, Barcelona and Málaga have stuck by these guidelines will be a crucial dimension of the comparative analysis in chapter four.

3. Investigation

This section outlines how the research will be conducted for the case study outlined in chapter 4.

3.1 Research Approach and Methodology

This study utilizes a mixed-methods approach to analyse the sustainability of the tourism sector in Spain and investigates the degree which tourism contributes to or hinders sustainable development in the three cities of Madrid, Barcelona and Málaga. The research combines qualitative analysis from academic literature with a quantitative analysis from official government statistical data. Much of the key statistical data will come from Spain's National Statistics Institute (INE). The quantitative data including indicators such as visitor numbers, sector employment, and resource consumption will structure the city profiles in chapter four and continue with comparative discussion in chapter five. A comprehensive insight of the effects of tourism is made available with this methodological synthesis, which offers a strong basis for creating policy recommendations to promote the expansion of a sustainable tourism model across Spain. As (Yin, 2018) states, comparative case studies benefit from having a wide range sources of evidence. In that case the secondary data sourced from Spain's National Statistics Institute (INE) will be very appropriate and comprehensive to this comparative case study on the three Spanish cities.

The mixed methods approach is appropriate for the research question. Firstly, the research question asks to what extent does tourism contribute to or hinder sustainable development. To answer this part, statistical evidence on visitor numbers, GDP contribution, housing prices and environmental indicators will be assessed. Secondly, the social and governance policy dimensions of sustainable tourism cannot be evaluated by means of statistics alone. This requires the interpretation of resident's experiences and policy effectiveness. The mixed-methods approach allows for the balance between the different dimensions affecting tourism. To arrive at its conclusions, this study adopts a pragmatic epistemological approach that prioritises the effectiveness of each method to the research question. It does this by using both objective statistical data and qualitative interpretative analysis.

This study relied solely on readily available secondary data. No primary data collection such as surveys, interviews or focus groups were conducted. As a result, formal ethical approval was not required. However, the study does acknowledge the importance of responsible data

usage, including accurate citations of all sources and reporting of any data limitations, which are addressed in section 3.4 below.

3.2 Case Study Design

A comparative case study design was selected as opposed to a single-city case study. Although a single-city case study analysis will allow for greater depth, it won't allow for the comparative dimensions to identify patterns from Spain's tourism model and draw conclusions from these patterns. Likewise, a national-level analysis would obscure the differences between urban tourism contexts, which is what this study seeks to investigate.

The rationale for choosing Madrid, Barcelona and Málaga was purposeful. These three cities represent a good balance and are adequate for a meaningful comparison while staying within the scope of the study. The three cities reflect the diversity of urban tourism in Spain. Madrid represents Spain's capital city tourism model, driven by cultural and business tourism. It's an exemplary city for what managed, year-round urban tourism looks like. Barcelona represents the overtourism epicentre. It is one of the most debated tourism destinations in Europe with social tensions high amongst residents and visitors in the city. Málaga represents a rapidly emerging coastal city in the South. It has experienced exponential tourism growth in recent years without the governance structure in place such as in Barcelona. The three cities together capture the essence of urban tourism that is representative of the challenges facing Spain's tourism model.

Each city as a tourist destination is the unit of analysis that will be used in the following chapter. The period being examined will be from 2014 to 2024, capturing pre-pandemic growth of the sector, the disruption because of COVID-19 in 2020/2021 and then the recovery period from 2022 onwards. This decade long window allows for an insightful trend analysis rather than just a shorter window of one or two years. Where data availability permits, earlier reference points will be drawn upon to provide a longer-term context.

All three cities in the case study will follow the same consistent analytical approach; tourism profile, economic indicators, social indicators, environmental indicators and governance policy response. This will help ensure comparability across the three cities and mirrors the three-pillar framework of sustainable development referenced in chapter two.

3.3 Data Sources and Collection Methods

This study will rely on secondary data as its main source of empirical evidence. Secondary data can be defined as data that has been previously collected and published by third parties

for purposes outside of a study (Saunders et al., 2019). Secondary data provides a multi-scope of the research and contains in-depth coverage that is difficult to replicate as primary data collection within the constraints of this study. Furthermore, secondary data will be collected from the INE, the UNWTO, Exceltur and Eurostat. This data is of high quality, accurate and reliable, making it well suitable to the analytical demands of this study.

Quantitative data is drawn from five main sources in relation to this study. The Instituto National de Estadística (INE) is the primary point of reference for visitor numbers, overnight stays, housing price indices, employment data and tourism's contribution to GDP at both national and city level. The United Nations World Tourism Organization (UNWTO) provides tourism benchmarks and indicators for sustainable development. Exceltur is Spain's leading tourism industry association, publishing city-level economic impact analysis. Regional data from the autonomous communities will give detailed insights into the cities along with crucial tourism data. This provides detailed evaluations of urban tourism performance across the three cities. Eurostat is another website that provides cross-nationally comparable urban tourism statistics that permits Spain's performance to be considered within the broader European framework. Airbnb will be another indicator of where I can source data around the short-term rental market in these three cities and how it also affects residents.

Qualitative data referred to in chapter two will be reconsidered when evaluating each city and the impact tourism has on sustainable development. Specific sources from the respective cities will also be considered when evaluating the social and governance dimensions surrounding tourism. A triangulation approach will be applied whereby multiple methods, data sources and theories are used to gain a comprehensive understanding of a certain phenomenon (Carter et al., 2014). This will entail cross-referencing quantitative data with qualitative evidence to enhance the validity of the findings.

3.4 Limitations of the study

The principal limitation of this study is that it relies heavily on secondary data. While this data is accurate and reliable, I have no control over how it was collected originally, the general framework involved and whether there was bias involved. For example, resident viewpoints may be slightly skewed or biased depending on if the views come from certain demographic groups, rather than getting a general outlook from the full population.

Another challenge with this comparative case-study is that different regions in Spain collect and publish data using different methodologies and time intervals. While the INE shows

standardization at a national level, data from Madrid, Barcelona and Málaga are not always directly comparable. Throughout the study, where this occurs the study will accept the discrepancy between the cities and will rely on the best available approximation.

A further limitation of the study involves the timing. Not all tourism indicators are accessible for the same years across the three cities. Certain environmental data is published less frequently than economic data. This means that comparisons between the cities may not always be based on the same time periods. Furthermore, the impact of the COVID 19 Pandemic in 2020 and 2021 creates inconsistencies in datasets which should be interpreted with care to ensure that the conclusions are not misleading.

The selection of Madrid, Barcelona and Málaga as opposed to other cities in Spain means that the findings are not entirely representative of the entire nation. For example, other tourist destinations such as Seville, Valencia and the Canary Islands represent tourism models that unfortunately fall out of scope of this study. The conclusions drawn from this study are tailored towards urban tourism and should be interpreted correctly.

With the methodology established, the following chapter contains the findings of the case study analysis of the three cities.

4. Case Study Analysis

This section outlines the three cities compared in the case-study. Each city will be analysed individually using a consistent five-part framework. This comprises of the city's tourism overview, economic indicators, social indicators, environmental indicators and an overall governance response. Applying these dimensions across all three cities ensures an equitable comparison in chapter five. The following data was collected between 2015 and 2025 for the purpose of this study. Key indicators that I will include in this case-study are international and domestic overnight stays, tourisms contribution to regional GPD, tourism employment figures, average housing price per metre squared, change in house prices from 2015 to 2025, Airbnb listings, tourist arrivals per month, resident satisfaction scores and public investment in tourism management per visitor. This chapter only looks at what is happening in each city and the tourism indicators. Chapter five will look at a comparative analysis of the three cities.

Economic Indicators: Tourism contribution to GDP (%), Tourism employment, Housing price & price change per metre squared (2015-2025), Overnight stays

Social Indicators: Airbnb listings, Resident satisfaction scores

Environmental Indicators: CO2/Transport Emissions, Seasonality Ratio

4.1 Madrid

Madrid is the capital city of Spain and is the primary cultural and business-tourist destination in Spain. As Spain's main political, economic and cultural hub, the city has experienced an astonishing transformation in recent years, establishing itself as a key destination of tourism, business and major events. It is also important to note that Madrid attracts a diversified visitor base compared to coastal cities. This ensures that it generates more year-round and less seasonal tourism than Barcelona and Málaga. In 2024, the city welcomed over 22 million visitors, 63% of them being international visitors (Madrid Destino, 2024).

Tourism contributed to 8.7% of Madrid's total GDP in 2024. This figure is approximately €28,569 million which compared to 2023 is an increase of 0.8% (Exceltur, 2026). This means that tourism in Madrid is contributing to Spain's GDP at a sustainable growth rate while also lowering the city's vulnerability to tourism seasonality. This is reflected in the United Nations sustainable development goal 8 that calls for economic growth and decent work.

Additionally, the tourism sector employed 317,517 people in the autonomous region of Madrid in 2024. This figure accounted for 8.3% of all total employment in the region (Exceltur, 2026). This figure is complementary to the growth of tourism from 2023 to 2024 as this employment figure increased by 0.7%. This figure for employment includes both direct and indirect employment. This constitutes the theory that states that both direct and indirect employment together creates induced employment which contributes positively to Spain's GDP. Sustainable tourism requires that these are rigid year-round employee contracts rather than seasonal employment opportunities.

The average housing price in the region of Madrid was €5,590 per metre squared while in 2015 it was €2,771 per metre squared (Global Property Guide, 2026). This figure represents a 102% increase over the past decade. As established earlier in the literature review, the growth of short-term rentals on platforms such as Airbnb is an alarming factor that has contributed to the rising costs of house prices in the region. This statistic demonstrates wider gentrification processes that are closely linked to the creation of short-term holiday rentals in the city centre (Ardura et al., 2026).

Madrid received a total of 22.3 million overnight stays in 2024, 63% of which were international visitors (Madrid Destino, 2025). This figure was 22 million in 2019 which indicates a 5.9% increase in overnight stays. This recovery from the pandemic low and surpassing of pre-pandemic levels is driven by Madrid's rich cultural and business attraction. This ensures that the city benefits from year-round travel unlike coastal destinations.

The city has 15,479 active listings on Airbnb (AirROI, 2026b). These listings account predominantly for short-term rentals. However, about 80% of these apartments are operating illegally without any proper licensing. As a result, the Spanish government has outlined stricter regulations on unlicensed short-term rentals. In 2025, the government introduced the Reside Plan to remove tourist apartments in residential buildings. This plan was introduced to encourage residential use in the city, promoting coexistence between residents and visitors. This scheme comes because of the gentrification issues facing house prices in Madrid. Nevertheless, the Reside Plan continues to be largely influential and unenforced, as illegal apartments continue to operate without being removed from the market.

Residents' perceptions of the impacts of tourism in Madrid were nuanced in the article by Marco-Gardoqui, García-Feijoo and others. The article reveals that Madrid's residents are aware of the threats posed by overcrowding and tourism, however not to the extent of other

cities (Marco-Gardoqui et al., 2025). However, anti-tourism motives are growing in neighbourhoods where short-term rentals are so common such as Malasaña and Lavapiés. In these areas, there are often issues surrounding neighbourly relations because the housing standards for apartments within the homeowners' associations are not being met. This evidence is backed up by Koens and Postma (2015) where European cities reported overcrowded spaces and displacements from daily routines are seen as the key stress and factors leading to tourism-phobia. Since 2024, the capital has sustained major anti-tourism and housing protests which included a major demonstration in April 2025 where 15,000 people gathered near Atocha and marched towards Plaza de España. This shows the growing frustration in central neighbourhoods where short-term rentals have driven up housing prices and angered residents.

As Madrid is inland it is heavily reliant on air travel when considering international travel from tourism. However, this reliance has allowed Madrid to input strict policies and goals in place to combat carbon emissions. In fact, direct greenhouse gas emissions in the capital are 21.82% lower than what they were in 2015 and 33% lower than what they were in 1990 (Ayuntamiento de Madrid, 2023). This figure demonstrates that Madrid is planning toward a sustainable future in line with the UN's SDGs with lower carbon emissions acting as a catalyst for reaching these goals.

The tourism seasonality ratio is a measure of the predictable changes over time of tourism-related aggregates (De Cantis & Ferrante, 2017). To get a measurable figure for tourism seasonality ratio, the peak month is divided by the off-peak month. Madrid had a low seasonality ratio of 1.45 in 2025 which indicates the cities balanced year-round tourism model (Country Economy, 2025). This enhances sustainable tourism in Madrid and ensures the city doesn't suffer from overtourism.

4.2 Barcelona

Barcelona is the capital of the autonomous region of Catalonia and is one of the most attractive city destinations worldwide with over 26 million visitors in 2025, 2.9% increase to 2024 (Barcelona Tourism Management, 2026). These visitors contributed to €14 Billion in direct tourism spending. The population of the city is 1.6 million which means Barcelona suffers from overtourism and tourism-phobia when residents become unsatisfied with the highly demanding levels of tourism. Barcelona provides a mixed tourism perspective from world class architecture to the Barceloneta coastline; the city offers tourists so much to do.

The tourism sector accumulated for approximately 14% of Barcelona's GDP in 2024 (HVS, 2025). Tourism in the region led to 3.6% of overall economic growth for Spain. This figure demonstrates that tourism is a key indicator for economic growth in the region. However, as mentioned in the theoretical framework, the economic benefits Barcelona receives are negatively overshadowed by the residents who see tourism as an inconvenience in their lives.

The sector employed approximately 165,000 people in 2024, and helped generate a total of €12,844 million in 2023 (Vaqué, 2026). In the autonomous region of Catalonia itself this figure extends to 543,000 accounting for 14% of Catalonia's entire workforce. Tourism supports jobs in hospitality, transport, food service and cultural attractions. The employment level represents a substantial share of Barcelona's economy; however, it remains slightly behind pre-pandemic levels. In terms of sustainable tourism, the change from rapid unchecked job growth to more stable managed employment increases. This aligns with goal 8 of the SDG's calling for inclusive, sustainable economic growth, productive employment and decent work for all.

The average housing price in Barcelona reached a new high of €4,587 per square metre in 2025 (El Mundo, 2026). This figure surpassed the average price in 2015 which was approximately €3,000 per square metre, representing an increase of approximately 53%. The surge in price has occurred concurrently with the expansion of tourism in the city. As established in the literature review, the high presence of short-term rentals from websites such as Airbnb has contributed to this increase. However, it must be noted that Barcelona faces a problem concerning the urban development of the city. The areas surrounding Barcelona have grown significantly evolving into large towns, yet the housing supply within the city has stagnated. This is because the city is located between the Mediterranean Sea to the east and the Montseny Massif mountain range to the north. Therefore, any new housing supply must come because of a reduction in tourist accommodation instead of new construction.

The number of overnight stays in Barcelona was recorded to be 23,100,000 in 2024 which was an increase of 11.3% from 2023 (Barcelona Tourism Management, 2025). This number shows the growing interest in tourism booming in the Catalan capital in recent years.

Barcelona has 10,984 active listings on Airbnb, which are predominantly used as short-term rentals (AirROI, 2026a). This has driven up housing prices in Barcelona as mentioned previously. Consequently, as stated in the literature review, in 2025 the government

introduced the Reside Plan to eradicate tourist apartments in residential buildings. This plan aims at promoting coexistence between local visitors and residents.

Resident's perception of tourism in Barcelona is documented and appear to be nuanced and contradictory. Research conducted by Milano and others shows that although Catalan residents understand the importance tourism brings to the city economically, they are also aware of the negative consequences arising because of tourism such as overcrowding and rising housing prices (Milano et al., 2019). Barcelona stands out in Europe as the anti-tourism sentiment is more organized and advanced with large groups such as the "Assemblea de Barris pel Decreixement Turístic" actively campaigning for reduced tourist accommodation. More than 3,000 residents took part in a protest in June 2025 against tourism in Barcelona signalling the damage that mass tourism has caused to the residents of the city (Reuters, 2025). Hostility is heavily concentrated in the central neighbourhoods of Ciutat Vella, El Raval and Grácia, where the influx of tourism combined with an increase in short-term rentals has disrupted local's daily life.

As a coastal city on the Mediterranean, Barcelona heavily relies on air and sea travel to accommodate the tourism industry. Aviation is responsible for 89% of the carbon footprint of tourism in Barcelona and 80% of tourist arrive by air (Stay Grounded, 2025). Despite this fact, direct greenhouse gas emissions within the city have declined from 1,535 thousand tonnes in 2015 to 586 thousand tonnes in 2024, representing a reduction of 62% (SDG Data Barcelona, 2025). This statistic shows Barcelona's commitment to long term climate sustainability and the SDG goals for 2030 published by the United Nations.

Barcelona has traditionally suffered from high seasonality. This is mainly due to the high influx of tourists in the summer months of June, July and August. However, data from 2025 indicates that Barcelona's tourism model shifting towards de-seasonalisation. Although August showed a 4.3% decline in international tourism compared to 2024, off peak months in January, February and October showed growth by 12.4%, 7.8% and 9.9% respectively (INE, 2025). This shows that the city is moving towards a more sustainable and stable tourism model that is not heavily reliant on the influx of international tourists in the summer months.

4.3 Málaga

Málaga is the second largest city in the region of Andalucía and the fifth largest city in the entirety of Spain. Founded in the 8th century B.C, it stands as one of Europe's oldest continuously inhabited cities. Since the 1970's the city has grown as a notable cultural and

economic centre on the Mediterranean coastline (Cumbre Villas, 2026). In 2025 the province of Málaga; the Costa del Sol, received a record breaking 14.65 million tourists (Andalucía Today, 2026). The city's contemporary tourism model trajectory is twofold; cultural tourism enhanced by the Picasso Museum and La Alcazaba and traditional summer sun holidays that attract international visitors to the Costa del Sol.

The tourism sector plays a pivotal role in the city of Málaga and the wider autonomous region of Andalucía. The sector contributed approximately 18% to the overall GDP of Málaga, with over €21 million raised from tourist activity alone (Diputación Provincial de Málaga, 2026). Málaga's economic dependence on tourism is higher than the regional average, stressing the sector's risks alongside its rewards. This is highlighted in the theoretical framework, where reliance on a single sector generates economic vulnerabilities.

In Málaga the sector employs 153,819 people with 76,000 of those in the hospitality sector (Martinez, 2026). This statistic means that over 20% of all workers in Málaga are employed in tourism. In Andalucía itself, tourism directly employs 482,000 people, 10% of the region's workforce. Of these employees, 78% hold permanent contracts and 86% work full-time, which underscores a switch from rapid job growth to more stable, managed employment in the region (Diputación Provincial de Málaga, 2026). This alignment with the SDG goal 8 shows that there should sustainable economic growth and decent work for all by 2030.

The average housing price in Málaga in 2025 is €4,145 per metre squared which compared to 2015 sees a 163% increase from €1,572 per metre squared (Fotocasa, 2025). As stated by Cró and Martins in the theory element of this study, the surge in price has occurred because of the expansion of tourism in the city.

According to data from the INE, there were 4,700,000 number of overnight stays in Málaga in 2024 (INE, 2025). This figure represents a 3.23% increase since pre-pandemic levels in 2019 which showed 4,553,092 overnight stays in Málaga. As mentioned before in the literature review, the high volume of overnight stays in short-term rentals has contributed to economic growth, however, has also allowed for housing prices to skyrocket in the last number of years.

Málaga has 12,754 licensed tourist properties, however, only 8,596 are actively operating at the moment (Idealsita, 2025). The mayor of Málaga, Francisco de La Torre, called on the regional government to intervene and remove the properties that fail to meet requirements.

This initiative aims at combatting the growth of short-term holiday rentals in the city that impede residents in Málaga to get affordable housing.

Resident's dissatisfaction towards tourism has grown rapidly in Málaga in recent years. In July 2024, 15,000 locals took part in a protest in the streets of Málaga over soaring rent prices because of tourism (Euronews, 2024). Protestors walked behind a slogan that read "Málaga para vivir, no para sobrevivir", meaning Málaga is for living not surviving. These protestors demanded rent price regulation and a ban on tourist properties. Residents commented that the city has become flooded with tourists with butchers, bakeries and fishmongers being replaced with tourism-oriented establishments. This reflects in the hatred residents have towards mass-tourism in the city which was previously established by Sanchez and Daumann (2025) in the literature review.

Málaga relies on air and sea travel as a Mediterranean coastal city. Málaga's total greenhouse gas emissions from energy consumption show a concerning trajectory since the beginning of this century. In 2018 total greenhouse gas emissions from energy consumption in Málaga reached 3,150,966 tonnes which shows a 51.9% increase since 2002 (Ciudad de Málaga, 2021). Although these emissions have fallen by 37.9% in 2020, the pre-pandemic trend underlines the vulnerability from energy use growing at an unsustainable rate. This poses questions about the long-term climate sustainability of Málaga's tourism dependent model. To combat this challenge the city of Málaga is committed to growth of the city at a sustainable rate explicitly aligning with the United Nations SDG goals 9,11,12,13,14 and 15 which all rectify the importance of sustainable urban development for cities by 2030. It's important to note that Málaga's greenhouse gas emissions cover a different period (2002-2018) than Madrid and Barcelona which limits direct comparability.

Málaga suffers from a very high seasonality of 14.7:1. This is drawn from statistics that show the city saw 6.2 million tourists between peak months June, July and August; whereas off-season months from January to May seen 705,851 tourists. This resulted in an average tourist-per-month figure of 2.07 million tourists per month in peak-season compared to 141,170 tourists per month in off-season (INE, 2025). The seasonality ratio is reached where 2.07 million is divided by 141,170. This figure is expected for a coastal city like Málaga that relies on tourist-heavy summers. However, although the city benefits from the tourist heavy summer months, visitor number have increased in off-season months due to cultural attractions such as the Picasso Museum, an influx of digital nomads and the mild winter

climate attracting Northern Europeans for city breaks. Not only that, but Málaga has also transformed into a popular destination for international students with UMA and UEA highly regarded universities. This gradual shift towards de-seasonalisation aims to create a more sustainable tourism model that reduces the pressure on public infrastructure and supports a year-round tourism model.

5. Comparative Discussion & Results

Within this section of the thesis, the results from the previous chapter will be discussed in detail allowing for a comparative analysis of tourism in the three cities and whether it is sustainable and contributes to sustainable development. No new data will be analysed in this chapter, and readings will be based on information gathered from previous chapters. The layout is like that of chapter two where the three-pillar framework is established. This chapter will culminate in the answering of the research question at the beginning of the study.

Indicator	Unit	Madrid	Barcelona	Málaga
Tourism of GDP	%	8.7	14	18
Tourism Employment	Count	317,517	165,000	153,819
Housing Price/m2	€	5,590	4,587	4,145
Housing Price Change (2015-2025)	%	102	53	163
Overnight Stays/Year	Count	23,300,000	23,100,000	4,700,000
Population (2024)	Count	3,300,000	1,702,814	586,384
Airbnb Listings	Count	15,479	10,984	12,754
Key Protest Figures	Count	15,000	3,000	15,000
GHG Emissions Change	%	-21.82	-65	51.9
Seasonality	Ratio	1.45	2.9	14.7

Figure 1: Statistical Tourism Indicators

5.1 Comparative Economic Impacts

GDP

The GDP figures across all three cities show a visible and meaningful spectrum of economic dependency. Madrid's tourism sector contributed to 8.7% of the city's GDP in 2024. This figure shows that the capital isn't overly reliant on the tourism sector and therefore has a diversified economy. In comparison, the tourism sector caters for 14% and over 20% for Barcelona and Málaga respectively. In Málaga one in every five workers are employed in the tourism sector. These figures both point to tourism over-dependency and structural vulnerability in the long-term. Recalling the dependency theory framework from chapter 2, such an over-concentration on tourism can generate structural instability through the exposure of local economies to external shocks. This long-term vulnerability arises when

cities prioritize tourism over other productive sectors, fostering reliance on external consumption rather than domestic growth.

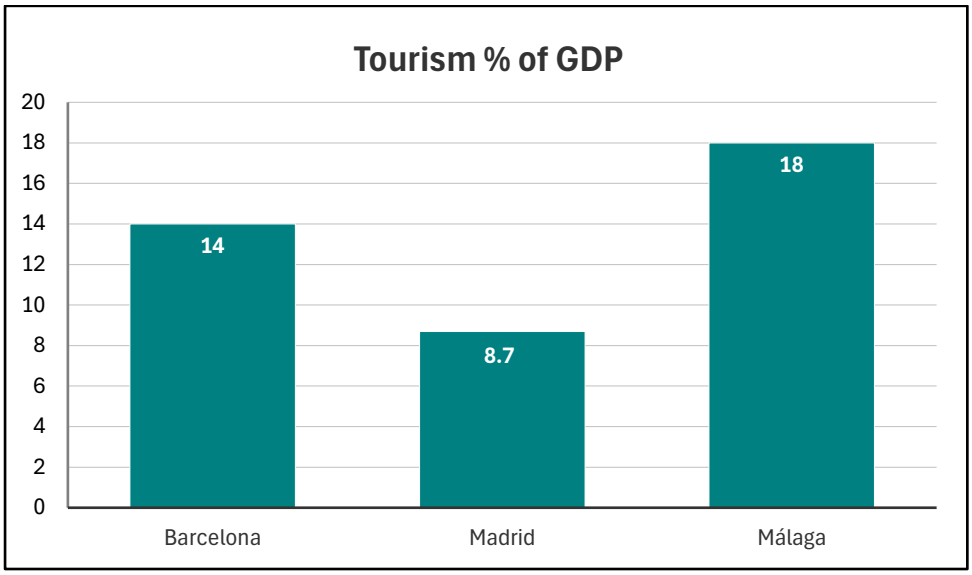

Figure 2: Tourism Contribution to GDP by City (2024). Source: Exceltur, 2026.

Employment

The employment situation in each of the three cities adds a significant quality dimension while still reflecting the GDP dependency pattern. In Madrid there are approximately 317,517 people employed in the tourism sector, compared to 165,000 and 153,819 in Barcelona and Málaga respectively. These employment numbers amounted to 8.3% of Madrid's workforce, 14% for Barcelona and over 20% for Málaga. The difference between Madrid and Málaga shows the grade of dependency each city has on the tourism sector. Although Madrid has more than double the amount of people employed in the sector, the relative percentage of the city's workforce gives a better insight into this dependence. Málaga's workforce is more than twice as reliant on the tourism sector than Madrid's. In theory, this constitutes long-term vulnerability meaning Málaga is exposed to seasonality, economic downturns and tourist flows.

Housing Impacts

All three cities experienced increases in the average housing price per square metre from 2015 to 2025. Madrid saw an increase in 102%, while Barcelona experienced a 53% increase. However, the most significant figure was the 163% increase in the average housing price in Málaga.

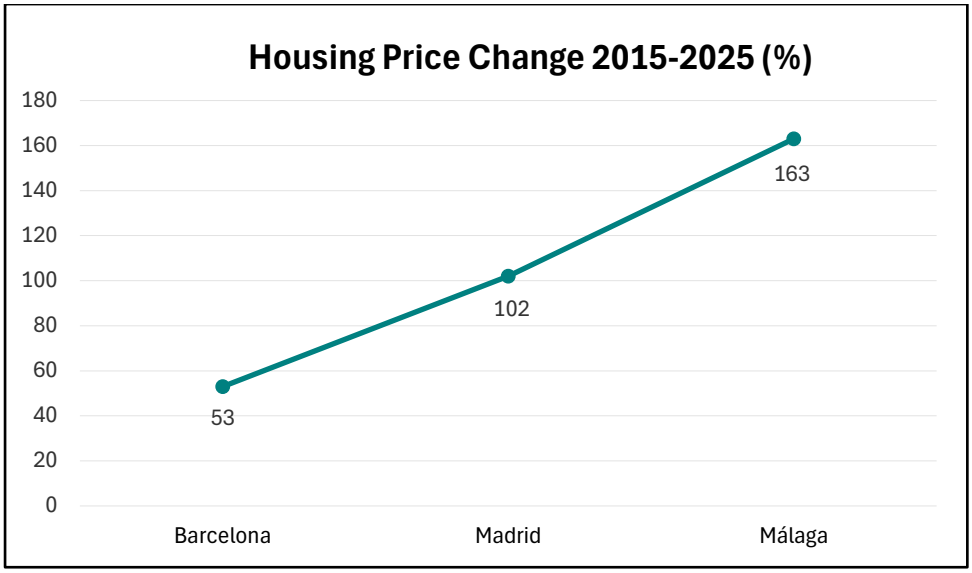

Figure 3: Housing Price Increase % by City (2015-2025). Source: Fotocasa, Global Property Guide, 2026

The study from Martins and Cró showed the strong correlation between rising tourism levels and increases in housing prices. This pattern is evident for Málaga; the city that shows the highest dependency on tourism in the study while also experiencing the highest increase in housing per metre squared. These statistics suggest that tourism-overdependent cities not only encounter labour-market vulnerability but also increases in housing pressure as short-term tourist rentals are prioritized over long-term residential accommodation.

5.2 Comparative Social Impacts

Overnight Stays & Urban Pressure

The starkest comparative measure of the social sustainability is the ratio of overnight stays to resident population in each of the three cities. Barcelona, with a resident city population of 1,702,814 as of (2024), recorded 23.1 million overnight stays, producing a ratio of 13.6:1. This is far higher than any other European city and exceeds the limit of sustainable carrying capacity. By contrast the ratios for Madrid and Málaga are 7.1:1 and 8:1 respectively. These ratios help to better understand the social carrying capacity thresholds mentioned in chapter two. Both Butler (1980) and Cifuentes (1992), commented on the impacts of cities exceeding their carrying capacity resulting in stagnation and slower economic growth.

Airbnb & Urban Liveability

The Airbnb figure comparison across the three cities provides clear evidence that links tourism growth to housing pressure. Madrid has the highest number of Airbnb listings with

15,479, followed by Málaga with 12,754 and Barcelona with 10,984. However, when we account for population, Málaga has the highest density of Airbnb listings with approximately 21.8 per 1000 residents. This high density helps further explain the 163% increase in housing prices in the city. As the literature review mentioned with Martins and Cró (2024), the proliferation of short-term rental accommodation has translated into a strong relationship between tourism activity and housing price inflation. This pattern is exemplified when looking at Málaga, where the presence of Airbnb density, extreme housing inflation and a tourism heavy workforce demonstrating the structural vulnerability that dependency theory warns against.

Residents' Thoughts/Protests

Resident dissatisfaction towards tourism can be seen through multiple protest demonstrations that have taken place in recent years. Both Madrid and Málaga recorded 15,000 participants in major anti-tourism protests in 2025 and 2024 respectively. Although Barcelona is regarded as having one of the most hostile reactions towards tourism from locals, the city's largest protest recently in our dataset showed only 3,000 participants. It must be noted however, that the resentment towards tourism in the city is more organised and structured with large groups such as the "Assemblea de Barris pel Decreixement Turístic" actively campaigning for less tourism accommodation (Milano et al., 2019). Málaga's protests, show tourism as an existential concern as the city moves from a residential community into a tourism heavy hotspot.

5.3 Comparative Environmental Impacts

CO2 & Transport Emissions

The environmental impact of tourism on the three cities deviates strongly. Barcelona has benefitted from the most significant emissions reduction compared to Madrid and Málaga. In fact, greenhouse gas emissions fell by 65% in Barcelona between 2015 and 2024. Madrid also managed to reduce emissions, with a 21.82% reduction over the same period. The same however, cannot be said to Málaga which shows that these emissions increased by 51.9% between 2002 and 2018. This data is concerning and suggest that although the city has experienced rapid growth in tourist numbers, this growth is unchecked and has occurred without corresponding environmental safeguards in place. This pattern directly contradicts the environmental stewardship principles outlined in the sustainable tourism framework in chapter 2 by Sunlu (2003). Málaga's emissions show a classic trade-off: rapid tourism led

growth prioritises short-term economic growth while neglecting long-term environmental sustainability in the process.

Seasonality Ratio

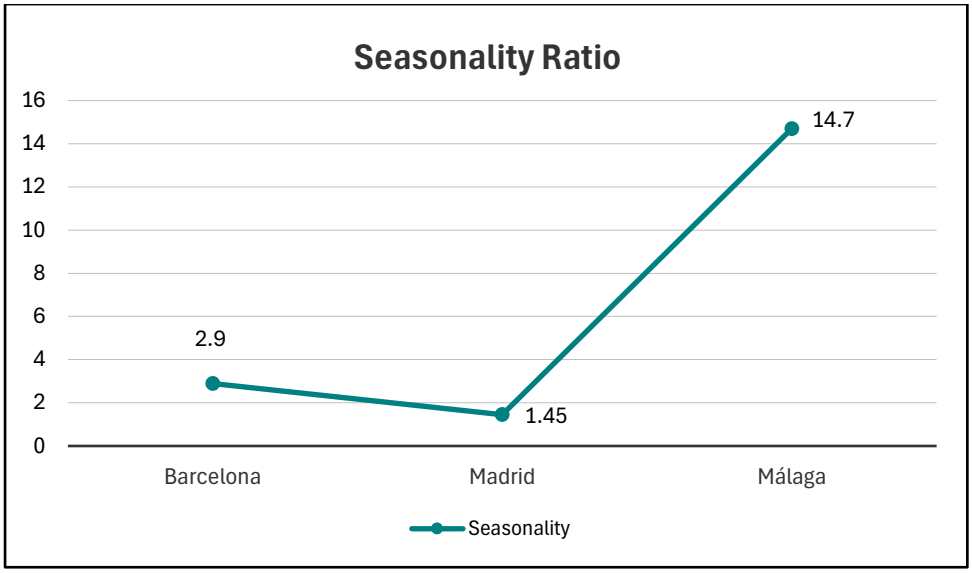

Figure 4: Tourism Seasonality Ratio by City (Peak Month / Off-Peak Month). Source: INE, Country Economy, 2025.

The seasonality ratio gives an account of each city's progress toward a sustainable, year-round tourism model. Madrid's seasonality figure for 2025 of 1.45:1 showcases a balanced tourism model with visitor numbers distributed relatively evenly across all twelve months of the year. This low seasonality ratio ensures that there is less pressure on infrastructure, stable year-round employment and supports the city's attraction as a key cultural and business destination. Barcelona's ratio meanwhile for 2025 was 2.9:1, indicating moderate seasonality although the data shows that the city is de-seasonalising, with off-peak months like January, February and October all seeing growth of 12.4%, 7.8% and 9.9% respectively (INE, 2025). Málaga has an extreme seasonality ratio of 14.7:1 for 2025. Dissecting this figure means that the peak summer months attract fifteen times more tourists than off-peak months. This alarming pattern, although expected for a sun-holiday destination like Málaga, creates infrastructure pressure over summer months and winter unemployment. Based on the Tourism Area Life Cycle model from Butler (1980) discussed in chapter 2, Málaga's alarming seasonality ratio points at a destination at risk of stagnation if it fails to diversify its tourism model and address the seasonality ratio. Madrid represents the most sustainable tourism model of the three.

5.4 Tourism Sustainability and Policy Implications

Based on the comparative analysis in this chapter, Madrid manifests the most sustainable tourism model across all three pillars. Spain's capital has a low seasonality (1.45:1), moderate GDP dependency (8.7%), declining greenhouse gas emissions since 2015 (-21.82%) and a visitor to resident ratio of 7.1:1. These statistics show that Madrid has a sustainable tourism model in place that is manageable. Barcelona in comparison, although displaying a greater reduction in greenhouse gas since 2015, faces more social sustainability challenges down to its high visitor-to-resident ratio of 13.6:1 and organised hostility towards tourism. Málaga positions itself as the most vulnerable city in this study when it comes to a sustainable tourism model. Its high GDP dependency on the sector (>20%), extreme seasonality (14.7:1) and rising greenhouse gas emissions between 2002 and 2018 all signal towards an unsustainable tourism model that requires urgent policy intervention. From this study, Málaga would benefit from adopting Madrid's approach to economic diversification and Barcelona's commitment to environmental regulation. This will enable Málaga to align with the Sustainable Development Goals while maintaining tourism growth.

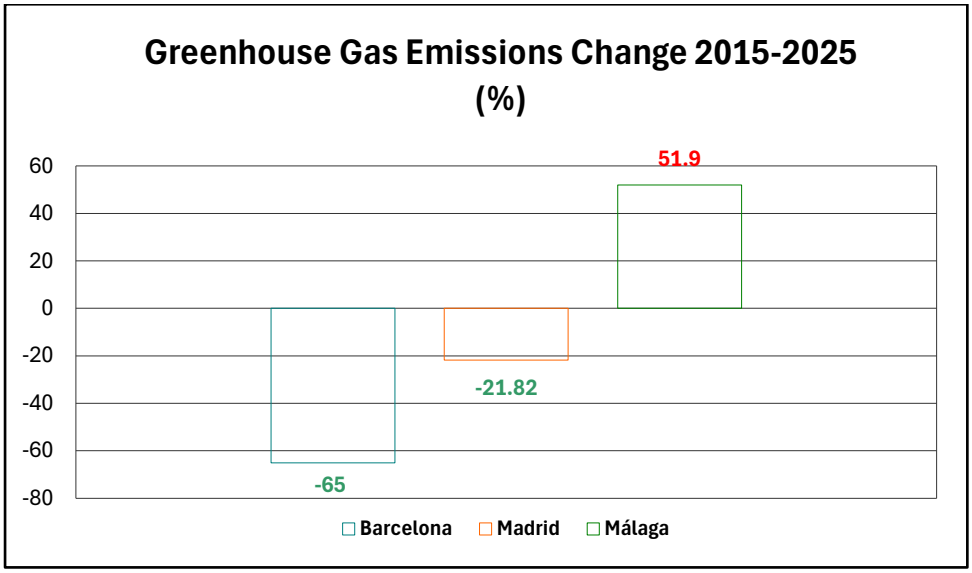

Figure 5: Change in Greenhouse Gas Emissions (2015-2024, except Málaga 2002-2018). Source: Ayuntamiento de Madrid, SDG Data Barcelona, Ciudad de Málaga, 2025.

6. Conclusions

This study set out to examine the extent to which tourism contributes to or hinders sustainable development in Spain using a case study analysis of the three cities of Madrid, Barcelona and Málaga. This case study centred around the economic, social and environmental pillars of sustainability. Secondary data collected from the INE, Exceltur, regional governments and a range of academic literature produced findings that help to the answer research question posed in chapter one; "To what extent does tourism contribute to or hinder sustainable development in Spain, with a comparative focus on Madrid, Barcelona and Málaga".

Economically, the statistics show that tourism is a pivotal driver of Gross Domestic Product and employment generation across all three cities with a strong correlation between the tourism activity and both GDP and employment levels. However, the degree of dependency differs drastically from the three cities. Madrid's tourism sector contributes 8.7% towards the city's total GDP indicating a healthy economic contribution. In contrast this figure is 14% and 18% for Barcelona and Málaga respectively with more than 1 in every five workers also employed in the tourism sector in Málaga. As a result, Málaga experiences structural vulnerability that the dependency theory warned against. The housing situation in Málaga also correlates with this economic fragility, with the city experiencing a 163% increase in average housing prices between 2015 and 2025. This is due to the displacement residential accommodation towards short-term rentals.

Socially, tourism is hitting the cities hardest where carrying capacity thresholds have been breached. Barcelona's visitor-to-resident ratio of 13.6:1 paints a picture of a city exceeding its' carrying capacity, which is reflected in organised hostility towards tourists. The data from Málaga shows a city that has been caught off-guard by rapid growth of tourism without enough government structures to manage it. Residents of Málaga have responded by taking part in protests in 2024. In Madrid, although tourism-phobia is not as prominent as the other two cities, the city demonstrates a context where the social carrying capacity threshold remains largely uncompromised.

Environmentally, the most striking piece of evidence is Málaga's concerning upward trajectory of greenhouse gas emissions from 2002 to 2018. This contrasts greatly with Barcelona, a city that has seen a 65% reduction in greenhouse gas emissions since 2015, while remaining a key tourist destination on the Mediterranean like Málaga. Both cities rely

heavily on air travel, so this figure comes as a shocking surprise. Madrid, meanwhile, saw a 21.82% reduction in these emissions. The seasonality also demonstrates the vulnerability with Málaga's tourism model. The city has an extreme seasonality ratio of 14.7:1, one that places extensive pressure on the city's public infrastructure and generates seasonal unemployment. These dynamics are catalysts towards stagnation in Butler's TALC model.

As a result, these findings combined suggest that tourism in Spain doesn't follow a uniform trajectory and that the cities studied differ considerably. Madrid boasts a sustainable model that contributes meaningfully to the economy without negatively impacting the city socially and environmentally. Barcelona's tourism model is mixed as rigid environmental frameworks and data is overshadowed by severe social pressures that requires urgent government management. Málaga, on the contrary, represents a tourism model with high economic dependency and extreme seasonality that results in concerning increases in housing, lagging behind both Madrid and Barcelona.

In terms of policy intervention, this study highlights three core interventions. First, a stricter, better-enforced regulation of short-term rental accommodation in the cities. This is already demonstrating positive impacts with the Reside Plan introduced in Madrid in 2025, to reduce the number of short-term rental accommodations in the city. Secondly, both Barcelona and Málaga must accelerate strategies to combat de-seasonalisation which will help to transform the tourism sector into a year-round sector that is not over-reliant on the influx of tourists in summer months. Third, to establish and manage carrying capacity thresholds for each city effectively. This will help keep overtourism under control and will ensure that city's tourism sectors grow without hindering sustainable development in the process.

While these findings are a strong representation of Madrid, Barcelona and Málaga, they don't accurately represent other Spanish tourism destinations such as the Canary Islands, Seville or Valencia. Future research into the topic should continue to look at Madrid and Barcelona and whether regulatory measures introduced in these cities translates to more affordable housing and resident satisfaction. This will help cities struggling such as Málaga adapt an approach for tourism growth that doesn't hinder sustainable development.

In final analysis, tourism can contribute to sustainable development successfully in Spain, Madrid showing this is possible. However, without planned governance that prioritises carrying capacity, housing affordability and environmental stewardship overgrowth, tourism will continue to hinder sustainable development. With Spain seeing a record-breaking 93.8

million international visitors in 2024, this shows the vulnerability of cities such as Málaga entering the stagnation and decline phases of the tourism life cycle. This will happen without urgent policy intervention put in place to maintain sustainable development.

AI Declaration

Declaración de Uso de Herramientas de Inteligencia Artificial Generativa en Trabajos Fin de Grado

ADVERTENCIA: Desde la Universidad consideramos que ChatGPT u otras herramientas similares son herramientas muy útiles en la vida académica, aunque su uso queda siempre bajo la responsabilidad del alumno, puesto que las respuestas que proporciona pueden no ser veraces. En este sentido, NO está permitido su uso en la elaboración del Trabajo fin de Grado para generar código porque estas herramientas no son fiables en esa tarea. Aunque el código funcione, no hay garantías de que metodológicamente sea correcto, y es altamente probable que no lo sea.

Por la presente, yo, Neil Gartlan, etudiante de E-4 de la Universidad Pontificia Comillas al presentar mi Trabajo Fin de Grado titulado "Sustainable Tourism in Spain: A Comparative Analysis of Economic, Social and Environmental Impacts in Madrid, Barcelona and Málaga", declaro que he utilizado la herramienta de Inteligencia Artificial Generativa ChatGPT u otras similares de IAG de código sólo en el contexto de las actividades descritas a continuación.

1. **Brainstorming de ideas de investigación:** Utilizado para idear y esbozar posibles áreas de investigación.
2. **Crítico:** Para encontrar contra-argumentos a una tesis específica que pretendo defender.
3. **Referencias:** Usado conjuntamente con otras herramientas, como Science, para identificar referencias preliminares que luego he contrastado y validado.
4. **Metodólogo:** Para descubrir métodos aplicables a problemas específicos de investigación.
5. **Constructor de plantillas:** Para diseñar formatos específicos para secciones del trabajo.
6. **Corrector de estilo literario y de lenguaje:** Para mejorar la calidad lingüística y estilística del texto.
7. **Generador previo de diagramas de flujo y contenido:** Para esbozar diagramas iniciales.
8. **Sintetizador y divulgador de libros complicados:** Para resumir y comprender literatura compleja.

9. **Revisor:** Para recibir sugerencias sobre cómo mejorar y perfeccionar el trabajo con diferentes niveles de exigencia.
10. **Traductor:** Para traducir textos de un lenguaje a otro.

Afirmo que toda la información y contenido presentados en este trabajo son producto de mi investigación y esfuerzo individual, excepto donde se ha indicado lo contrario y se han dado los créditos correspondientes (he incluido las referencias adecuadas en el TFG y he explicitado para que se ha usado ChatGPT u otras herramientas similares). Soy consciente de las implicaciones académicas y éticas de presentar un trabajo no original y acepto las consecuencias de cualquier violación a esta declaración.

Fecha: 25/05/2026

Firma:

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