COMPARATIVE ANALYSIS OF THE IMPACT OF CULTURAL AND CREATIVE INDUSTRIES ON GDP AND EMPLOYMENT: A CASE STUDY OF GERMANY AND SPAIN*

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Comparative Analysis of the Impact of Cultural and Creative Industries on GDP and Employment: A Case Study of Germany and Spain

Abstract: This study presents a comparative analysis of the cultural and creative industries in Spain and Germany, examining them in terms of knowledge, innovation, and intellectual property, as well as the implications of their clusters for regional growth in both countries. For this analysis, descriptive statistics are used to examine economic and employment indicators, analyzing data from various sources, including official national and regional statistics. The results indicate that both industries contribute significantly to economic growth in terms of GDP and employment. In addition, the study provides recommendations for using these clusters to promote economic growth and social cohesion.

Keywords: Cultural and creative industry, clusters, economic development, regional development. JEL: Z11, L82, O18, R11, J21, C21

Análisis comparativo del impacto de las industrias culturales y creativas en el PIB y el empleo: un estudio de caso de Alemania y España

Resumen: Este estudio presenta un análisis comparativo de las industrias culturales y creativas en España y Alemania, examinándolas en términos de conocimiento, innovación y propiedad intelectual, así como las implicaciones de sus clústeres para el crecimiento regional en ambos países. Para este análisis, se utilizan estadísticas descriptivas para examinar indicadores económicos y de empleo, a partir de datos de diversas fuentes, incluidas estadísticas nacionales y regionales oficiales. Los resultados indican que ambas industrias contribuyen significativamente al crecimiento económico en términos de PIB y empleo. Además, el estudio proporciona recomendaciones para utilizar estos clústeres para promover el crecimiento económico y la cohesión social.

Palabras clave: Industria cultural y creativa, clústeres, desarrollo económico, desarrollo regional. JEL: Z11, L82, O18, R11, J21, C21

Análise comparativa do impacto das indústrias culturais e criativas no PIB e no emprego: um estudo de caso da Alemanha e da Espanha

Resumo: Este estudo apresenta uma análise comparativa das indústrias culturais e criativas na Espanha e na Alemanha, examinando-as sob os enfoques do conhecimento, da inovação e da propriedade intelectual, bem como as implicações de seus clusters para o crescimento regional em ambos os países. Para essa análise, utilizam-se estatísticas descritivas com o objetivo de examinar indicadores econômicos e de emprego, a partir de dados provenientes de diversas fontes, incluindo estatísticas oficiais nacionais e regionais. Os resultados indicam que ambas as indústrias contribuem de forma significativa para o crescimento econômico em termos de PIB e geração de emprego. Além disso, o estudo oferece recomendações para a utilização estratégica desses clusters na promoção do crescimento econômico e da coesão social.

Palavras-chave: Indústria cultural e criativa, clusters, desenvolvimento econômico, desenvolvimento regional. JEL: Z11, L82, O18, R11, J21, C21

1. INTRODUCTION

The cultural and creative industries (CCI) have gained increasing attention in recent years due to their growing economic significance and potential for promoting social and cultural development. These industries encompass a diverse range of activities, including art, music, film, television, publishing, fashion, design, and advertising, among others. The cultural and creative industries have become key drivers of innovation, job creation, and urban revitalization, contributing to the development of vibrant and dynamic cities.

Over the past few years, the concept of culture, cultural industry, and creative industry has undergone significant evolution, culminating in the present trend of cultural and creative industries. This evolution has also led to the development of corresponding policies (Souza, 2006; UNCTAD, 2010; UNCTAD, 2015). Thus, the literature indicates that cultural policies should prioritize knowledge and innovation (Taylor Buck & While, 2017; Gu et al., 2020), as these two factors have become critical in driving the economic development of European countries (European Innovation Scoreboard, 2019).

The COVID-19 pandemic has significantly impacted the cultural and creative industries, leading to a substantial economic decline. As a result, there is now a greater emphasis on the need to reinforce innovation processes within the value chains of these industries to adapt to market demands. This has further highlighted the importance of cultural policies that prioritize knowledge and innovation (Magadán-Díaz and Rivas-García, 2021; Yudice, 2021).

Thus, the objective of this study is to conduct a comparative analysis of CCI in Germany and Spain, to identify the main clusters within these industries and evaluate their influence on regional development. To achieve this objective, the following research questions will guide this study:

- What historical antecedents have contributed to the establishment of the current governance framework in Germany and Spain?
- What spatial patterns exist at the regional level in Germany and Spain, particularly about CCIs?
- Which CCI factors have the greatest impact on GDP and employment in Germany and Spain?

Spain and Germany have been chosen as case study areas in this research on CCO due to their economic and cultural importance within the European Community. Germany is the fourth-largest economy in the world and has a strong focus on technology and innovation. On

their part, Spain shares characteristics of developed countries but has lower economic development indicators compared to other developed countries members of the OECD, such as Germany.

Spain has several creative clusters, with Barcelona and Madrid being the most prominent. Barcelona is home to a diverse range of creative industries. Madrid, on their part, is known for its cultural and artistic heritage. In contrast, Germany has a strong focus on innovation and technology, with creative clusters in Berlin, Munich, and Hamburg. Berlin has emerged as a hub for creative startups, while Hamburg is known for its music and media industries.

When it comes to specialization, Spain's creative clusters tend to be more focused on traditional cultural industries, such as art and heritage, while Germany's clusters are more oriented toward technology and innovation. Additionally, the size of the clusters in each country varies, with some clusters being larger and more diverse than others. Cultural and creative clusters can have a significant impact on regional development, urban planning, and cultural policy. They can attract new businesses and entrepreneurs, stimulate innovation and creativity, and contribute to the overall vibrancy and attractiveness of a region.

In Spain, creative clusters have been leveraged to promote urban regeneration in cities like Barcelona and Valencia. In Germany, creative clusters have been used to attract foreign investment and promote regional economic growth. However, there are also challenges associated with cultural and creative clusters, such as rising costs of living and the displacement of local communities. Overall, understanding the dynamics of cultural and creative clusters is essential for policymakers, urban planners, and business leaders looking to promote economic growth in their regions.

The proposed methodology is to look at the historical antecedents that have contributed to the establishment of the current governance framework in Germany and Spain and characterize the spatial patterns and identify the CCI factors that have the greatest impact on GDP and employment in Spain and Germany by using spatial statistics and spatial econometrics.

This article is organized into six main sections. The introduction provides an overview of the study's objectives and research questions. The literature review section, which follows, presents the theoretical framework that underpins the study and provides a historical context for the analysis of cultural and creative industries (CCIs). In this section, we also discuss methods for approaching clusters in CCIs.

The methodology section, third in the order, outlines the techniques used to identify spatial patterns and CCI factors that have the greatest impact on GDP and employment in Spain and Germany. The fourth section presents an analysis of the results and discusses potential policy recommendations. Finally, the concluding section summarizes the findings and highlights the implications for future research. After that, there is the reference section.

2. HISTORICAL CONTEXT AND LITERATURE REVIEW

The study of cultural policy is a critical tool for comprehending the complex interplay of historical, political, and economic factors that shape the cultural landscape of each country. By exploring the development and implementation of cultural policies, researchers can gain insight into the underlying social, political, and economic structures that influence cultural production, distribution, and consumption. Indeed, cultural policy can be seen as a lens through which we can examine the broader social and political dynamics of a given society. An analysis of cultural policy is thus essential for understanding not only the constitution of culture but also the broader political and economic contexts that shape its evolution over time (Wyszomirski, 1998).

This literature review section provides a comprehensive analysis of the theoretical framework of cultural and creative clusters that underpins this study, as well as a historical context for understanding the CCIs in Germany and Spain. The section is divided into two main parts. First, there is a historical overview of the development of CCIs in Germany and Spain. Then, the concept and theoretical framework of CCIs are discussed, followed by different methods for approaching clusters in the CCI.

2.1. Historical Context on CCI and Policies

2.1.1. Spain: the growth of creative cities

a. Brief Historical Context

During the era of Francisco Franco, Spain's CCI experienced stagnation due to the absence of public policy support (Brooks, 2003). Following Franco's death, the Spanish political constitution was established in 1978, underscoring the significance of democracy, and consequently, the concept of "cultural democracy" emerged, aiming to ensure that every individual had the means to participate in cultural

life (Culture Commission of the Spanish Federation of Municipalities and Provinces, 2002).

A major change after 1978 was the decentralization of Spain's cultural policy system, which resulted from a legislative design that fostered a new dialogue involving public cultural bodies, the market (particularly private cultural agents), the cultural non-profit sector, and the political sphere (Bonet & Négrier, 2010). Since then, Spain has been working to strengthen its city brand to encourage local development, necessitating public policies that support and enhance creative environments and their agents, enabling cities to evolve into smart, development-generating hubs (Rius Ulldemolins & Zamorano, 2015).

Between 1980 and 1990, culture in Spain began to solidify as a strategic activity (Barrado-Timón et al, 2020), bolstered by the private sector's involvement in the government's project to fortify the national brand. This public-private collaboration generated synergies that benefited not only cultural development but also the nation's broader development (Rius Ulldemolins & Zamorano, 2015), as culture functions similarly to other market-traded commodities, thereby generating resources and benefits (Escalona et al, 2017).

By the Spanish Constitution, each autonomous community (CC. AA) is responsible for promoting its unique cultural and heritage identities by developing its own statutes and cultural policies, this decentralized approach to cultural policy has primarily been driven by the autonomous level, as for the central government's cultural policies, they stem from a monarchical tradition with a centralized organization (Zamorano, 2017).

Public spending on culture in Spain can be examined across three levels of administration: general state administration, autonomous administration, and local administration. Of these three, local administration accounts for the majority of spending, followed by autonomous administration, and finally general state administration (Ministerio de Cultura y Deporte, 2021).

As part of Agenda 21 for culture, the United Cities and Local Governments assumed the coordination of the post-approval process of public policies on culture in October 2004. In 2005, the Committee on Culture of the FEMP initiated the development of an indicator system for evaluating local cultural policies, consisting of a self-assessment exercise comprising up to 117 quantitative and 235 qualitative indicators.

In 2017, the Spanish government launched the "Culture Plan 2020" (Ministerio de Educación, Cultura y Deporte, 2017), a strategic initiative aimed at bolstering Spain's cultural sector by promoting digital transformation, fostering cross-sector collaboration, and supporting internationalization.

Another crucial development in Spain's cultural policy landscape is the "Creative Europe" program (European Commission, 2021), a European Union initiative that supports the cultural, creative, and audiovisual sectors from 2014 to 2027. As a participant in this program, Spain benefits from funding opportunities for projects that foster cross-border collaboration, strengthen the competitiveness of CCI, and promote European values.

The Spanish CCI has also demonstrated remarkable growth in recent years. According to a report by the Spanish Ministry of Culture and Sport (2021), the CCI contributed 3.2% to Spain's GDP in 2019. Furthermore, these industries experienced a growth rate of 2.7% between 2010 and 2019, outpacing the overall growth of the Spanish economy during the same period.

Spain's cultural policy has also focused on supporting the growth of creative cities. In 2018, Barcelona was designated as a UNESCO Creative City of Literature (UNESCO, 2018), joining a network of cities that commit to promoting CCI and fostering collaboration between artists, creators, and cultural institutions. Other Spanish cities, such as Bilbao, Seville, and Valencia, are also working towards developing vibrant creative ecosystems to boost their CCI.

In conclusion, Spain has made significant progress in the development and implementation of cultural policies. The nation's efforts to strengthen its CCI, as well as its participation in international initiatives like "Creative Europe," demonstrate its commitment to fostering a thriving cultural landscape. As the country continues to evolve and adapt to the challenges and opportunities of the 21st century, its CCI tries are poised to play an increasingly important role in Spain's overall economic and social development.

b. Governance framework of cultural policies

The governance framework of cultural policies in Spain is characterized by a complex distribution of competencies among different levels of government, encompassing national, regional, and local authorities (Bonet & Négrier, 2010). The Spanish Ministry of Culture and Sport is the central institution responsible for designing and implementing national cultural policies. However, autonomous communities and

local administrations also play a crucial role in the promotion and management of cultural policies within their jurisdictions (Zamorano, 2017).

The autonomous communities in Spain have considerable decision-making authority in the realm of culture, with each region developing its own statutes and cultural policies according to its unique cultural and heritage identity (Zamorano, 2017). This decentralization of cultural competencies has contributed to a diverse cultural landscape, reflecting the various regional identities that coexist within the country (Bonet & Négrier, 2010).

Local administrations, such as city councils, are also vital actors in the governance of cultural policies. They are often responsible for the management of cultural facilities, the organization of events and festivals, and the development of local cultural initiatives (Ministerio de Cultura y Deporte, 2021). The collaboration between different levels of government is facilitated by organizations like the Spanish Federation of Municipalities and Provinces (Culture Commission of the Spanish Federation of Municipalities and Provinces, 2002).

In 2019, the CCI accounted for 3.2% of the country's GDP (Ministerio de Cultura y Deporte, 2021). This figure highlights the growing economic importance of the CCI. The sector also plays a vital role in providing employment opportunities, with over 700,000 people employed in the CCI in 2019 (Ministerio de Cultura y Deporte, 2021).

In summary, the governance framework of cultural policies in Spain involves a complex interplay of competencies between national, regional, and local institutions. This multilevel approach has facilitated the development of a diverse and vibrant cultural landscape, reflecting the country's rich regional identities. As the CCI continues to grow, it is poised to play an increasingly important role in Spain's economy.

2.1.2. Germany: creative entrepreneurs, collaboration, and Diversity

a. Brief Historical Context

The history of German cultural policy has been marked by the identity of the nation over time, so we will review the historical context that has determined its evolution throughout the twentieth century.

The Holy Roman Empire (800-1806) laid the groundwork for Germany's regional identity formation, consisting of a complex assortment of duchies and states, including powerful entities such as Prussia and Bavaria. Prussia played a pivotal role in unifying Germany

into an empire in 1871. In the wake of the country's formation, cultural policy became defined by regional states and municipal councils due to the diversity of German-speaking regions, culminating in the establishment of the Federal Republic of Germany (FRG) in 1949.

Following World War II, Germany's cultural landscape underwent a profound transformation, with the FRG and the German Democratic Republic (GDR) fostering distinct cultural policies. The FRG embraced a decentralized approach to cultural governance influenced by Western ideals, while the GDR, under Soviet influence, adopted a more centralized approach to cultural administration.

The reunification of Germany in 1990 marked a new epoch of cultural policy realignment, with efforts focusing on integrating the disparate cultural legacies of the FRG and GDR and emphasizing the preservation and promotion of the unique cultural heritage of the eastern regions.

The advent of the 21st century brought new milestones in Germany's cultural policy landscape. The establishment of the Federal Ministry for Culture in 1998 by the SPD-Green coalition and the subsequent release of the Kulturpolitische Mitteilungen report in 2002 (Ahearne, 2003) laid the foundation for a new era of cultural policy management. This Ministry plays a crucial role in promoting cultural institutions, events, and initiatives throughout Germany, often in collaboration with the Länder (Federal Government, Commissioner for Culture, and the Media, 2014).

Today, Germany's cultural policy framework is characterized by a unique brand of Kulturföderalismus, fostering collaboration between federal, state, and local authorities. This approach is exemplified by the Conference of Ministers of Education and Culture of the Länder, which periodically invites the Federal Commissioner for Culture to contribute insights in an advisory capacity (Zamorano & Rius, 2018).

Germany's robust cultural policy infrastructure is encapsulated by the Compendium of Cultural Policies & Trends, a comprehensive database that compiles and analyzes the cultural policies of 43 countries (and counting) (Compendium of Cultural Policies & Trends, 2022). This invaluable resource underscores Germany's preeminent position in the global cultural policy arena and attests to its exemplary cultural policy management and organization.

In conclusion, Germany's cultural policy trajectory over the 20th and 21st centuries is a testament to the nation's adaptability and resilience in the face of historical upheavals. By fostering a collaborative, diverse, and inclusive cultural landscape, Germany has established

itself as a leading light in the realm of cultural policy, both in Europe and beyond.

b. Governance framework of cultural policies

Germany's cultural policy landscape is supported by a governance framework that defines the responsibilities and roles of various institutions at the federal, state, and local levels (Zimmermann, 2016). This framework ensures a cohesive and coordinated approach to cultural policy development and implementation while maintaining the unique regional characteristics of each Länder (Ahearne, 2003).

At the federal level, the Federal Ministry for Culture plays a crucial role in promoting cultural institutions, events, and initiatives throughout Germany, often in collaboration with the Länder (Federal Government, Commissioner for Culture, and the Media, 2014). The Ministry is responsible for generating support for more than 70 facilities and major events, thereby shaping the legislative framework for cultural policies in the country (Ahearne, 2003).

The Länder, or federal states, have their own Landesregierungen (state governments) that execute the legislation and goals set by the Bundesregierung (Federal Government) (Zimmermann, 2016). Each federal state possesses distinct competencies, shaping cultural policy according to its regional context and priorities (Ahearne, 2003). This decentralized approach encourages the growth and preservation of diverse cultural traditions and identities (Zamorano & Rius, 2018).

Local governments, operating within the framework of Article 30 of the German constitution, support cultural institutions and programs through cooperation with federal and state governments (Zimmermann, 2016). This three-tiered governance structure fosters collaboration and inclusivity, as evidenced by the Conference of Ministers of Education and Culture of the Länder, which invites the Federal Commissioner for Culture to contribute insights in an advisory capacity (Zamorano & Rius, 2018).

The creative industries sector in Germany has emerged as a vital component of the national economy (Kultur-und, 2020). According to a report by the German Federal Government, in 2019, the creative industries generated a turnover of €174 billion and employed more than 1.5 million people (Kultur-und, 2020). This sector's contribution to the German economy highlights its importance in fostering innovation and maintaining international competitiveness (Lange et al., 2008).

The creative industries encompass a diverse range of fields, including music, film, broadcasting, design, fashion, and advertising (Lange et al., 2008). Many of these industries are concentrated in urban areas such as Berlin, Hamburg, and Munich, which have developed their cultural and creative ecosystems (Kraus & Böhm, 2013). These cities have implemented supportive infrastructure, networks, and policies to encourage innovation and growth in the creative industries (Lange et al., 2008).

For instance, Hamburg has a comprehensive cultural policy that includes measures to support creative entrepreneurs, enhance cultural infrastructure, and promote cultural diversity (Kraus & Böhm, 2013). Berlin, too, has a strategy to promote the creative industries, with measures to improve access to funding, support the development of creative clusters, and foster international networking (Lange et al., 2008).

In summary, Germany's governance framework for cultural policies reflects a commitment to collaboration, diversity, and inclusivity at the federal, state, and local levels (Ahearne, 2003; Zimmermann, 2016). The creative industries sector has emerged as a significant contributor to the German economy (Kultur-und, 2020), highlighting the importance of a robust and dynamic cultural policy framework in driving innovation and competitiveness in the global arena (Lange et al., 2008).

2.2. Literature review: theoretical framework on cultural and creative clusters (CCI)

In recent years, cultural and creative industries have gained increasing attention due to their potential for economic growth and social development. Cluster theory is a useful framework for analyzing the geography of the cultural and creative industries, particularly in a comparative study of different regions or countries. This theory emphasizes the benefits of agglomeration for innovation, productivity, and competitiveness, and highlights the advantages of clusters for the cultural and creative industries such as specialization, labor pooling, and specialized infrastructure and services.

Scholars have studied the formation and growth of creative clusters using cluster theory as a framework. Boix & Fernandez-Molina (2010) analyzed the spatial patterns of the cultural and creative industries in Europe, focusing on the formation of clusters and their relationship with urban development.

Boix and Fernandez-Molina's study highlights the importance of urban areas with a strong cultural heritage and creative infrastructure in the formation of creative clusters. Creative clusters are often located in urban areas because they benefit from agglomeration effects such as knowledge spillovers, specialized infrastructure and services, and labor pooling. Moreover, creative clusters can attract new businesses and entrepreneurs, stimulate innovation and creativity, and contribute to the overall vibrancy and attractiveness of a region or city.

Cluster theory provides a useful framework for analyzing the geography of the cultural and creative industries. The theory emphasizes the benefits of agglomeration for innovation, productivity, and competitiveness. Clusters offer several advantages for the cultural and creative industries, such as specialization, labor pooling, and specialized infrastructure and services. Additionally, cluster theory helps policymakers, urban planners, and business leaders to understand the dynamics of cultural and creative clusters and to promote economic growth and social cohesion in their regions.

In summary, cultural, and creative clusters are important topics of research and policy discussion. Scholars have analyzed the formation and growth of creative clusters using cluster theory as a framework, highlighting the importance of urban areas with a strong cultural heritage and creative infrastructure. Cluster theory provides a useful framework for understanding the geography of the cultural and creative industries and for promoting economic growth and social development in regions and cities.

This literature review is divided into three parts. The first one presents the studies on clusters in cultural and creative industries and the second one is about spatial statistics and econometrics approaches. The last part presents the research gaps and contributions in this field.

2.2.1. Clusters in CCI: a literature review

In general, cluster theory is a useful framework for analyzing the geography of the cultural and creative industries in a comparative study of Spain and Germany. This theory emphasizes the benefits of agglomeration for innovation, productivity, and competitiveness. Clusters offer several advantages for the cultural and creative industries, such as specialization, labor pooling, and specialized infrastructure and services.

Several studies have explored the formation and growth of creative clusters in the cultural and creative industries, emphasizing their role in promoting innovation and economic growth (Porter, 1998;

Boschma, 2005; Maskell & Malmberg, 1999). Research has also examined creative clusters in Spain and Germany, highlighting factors such as institutional support, knowledge exchange, and the presence of creative individuals and firms (Rodríguez-Pose & Iammarino, 2006; van et al., 2012).

Florida (2002) has underscored the importance of creative clusters in fostering economic and social development in cities. Other studies have investigated the relationship between creative industries and urban development, regional development, and smart specialization strategies (Boix & Fernandez-Molina, 2010; Guzman-Parra & Femenia-Serra, 2017; Li et al., 2017; Moilanen & Vuorinen, 2015). The following table summarizes the main literature contributions on this topic for Spain and Germany (Table 1):

Table 1.
Literature contributions on clusters of cultural and creative industries for Spain and Germany

Author(s)	Year	Description
Bianchini	2019	Creative bureaucracy in promoting creativity and innovation in the public sector
González-Santamaría and Arribas-Bel	2019	Compared the cultural and creative industries in Madrid and Berlin, highlighting the importance of the cultural and historical context in the development of creative clusters.
Pratt	2018	Relationship between the cultural economy and the city
Vazquez-Barquero, Garrido-Samaniego	2018	International competitiveness of the Spanish cultural and creative industries
Guzman-Parra, Femenia-Serra	2017	Creative industries in the smart specialization strategy of regions
Li, Faggian, McCann	2017	Globalization and agglomeration on regional development trajectories
Deffner	2017	Decentralized and collaborative approach to cultural production
Kroll, Schubert	2016	Development of creative industries in a peripheral region of Germany
Miguélez and Moreno	2016	Examined the role of creative industries in regional development in Spain and Germany. Found that while creative industries are important for regional development in both countries, the level of development and the role of creative industries vary significantly between regions.
Moilanen, Vuorinen	2015	Creative industries in urban renewal in Helsinki, Finland
Van Oort, Knoben, Fornahl	2012	Spatial concentration of creative industries in Germany regions
Lechner, Dowling, Welpe	2011	Analyzed the impact of creative industries on regional innovation in Germany and Spain. Found that the creative industries in both countries contribute significantly to innovation, with greater impact in Germany due to its strong focus on technology and innovation.

Author(s)	Year	Description
Boix, Fernandez-Molina	2010	Spatial patterns of cultural and creative industries in Europe
Rodríguez-Pose, Iammarino	2006	Factors contributing to formation and growth of creative clusters in Madrid
Boschma	2005	Formation and evolution of creative clusters in Europe
Florida	2002	The creative class and its role in cities, importance of creative clusters
Maskell, Malmberg	1999	Formation and evolution of creative clusters in Stockholm, Sweden
Porter	1998	Importance of clusters for innovation and economic growth

Source: Own adapted from literature review

2.2.2. Spatial analysis methods

The studies in the table analyze the spatial distribution, clustering, and factors contributing to the formation and growth of cultural and creative industries using various methods, such as spatial statistics, GIS, and spatial econometrics. They cover diverse geographical areas, including China (Gu, 2014), Canada, and European regions, and emphasize the importance of elements like universities, research centers, and cultural amenities. Additionally, the studies address topics like the creative economy, gendered work and space, and the impact of the creative class on regional economic performance. A summary of this literature is as follows (Table 2):

Table 2.
Literature contributions on clusters of cultural and creative industries for Spain and Germany

Author	Year	Description
Comunian et al.	2015	Investigated the regional creative economy in Canadian provinces, using the concept of the creative class and creative industries. The authors found that the creative class and creative industries have a positive impact on regional economic performance, particularly in terms of income and employment growth.
Gu et al.	2014	Analyzed the spatial distribution and cluster patterns of cultural industries in China, using a combination of spatial statistics and GIS methods. The authors found that cultural industries tend to cluster in urban areas with high population density, transportation infrastructure, and cultural amenities, which can be useful for promoting regional economic growth and social cohesion.
Arribas-Bel and Nijkamp	2012	Proposed a general framework for the analysis of geographically weighted regression models with application to cultural heritage data. The authors argued that this framework can be useful for analyzing the spatial distribution of cultural and creative industries, and for investigating the factors that contribute to their formation and growth.

Author	Year	Description
Bristow et al.	2010	Developed a place-based approach for designing strategies for the creative economy, emphasizing the importance of clusters and creativity for the competitiveness of city-regions. The authors argued that this approach can be useful for promoting economic growth and social cohesion in the cultural and creative industries.
Desrochers and Leppälä	2010	Analyzed the geography of networks and R&D collaborations, using a spatial econometric model. The authors found that the spatial concentration of R&D collaborations is positively related to the presence of universities, research centers, and cultural amenities, which can be useful for promoting innovation and creativity in the cultural and creative industries.
Guo and Nijkamp	2009	Used spatial autocorrelation and hot spot analysis to identify the spatial concentration of creative industries in Beijing, China. The authors found that the spatial concentration of creative industries is positively related to the presence of universities, research centers, and cultural amenities, which can be useful for promoting innovation and creativity in the cultural and creative industries.
Hanson and Pratt	1995	Discussed the gendered nature of work and space in the context of economic restructuring and urban change. While not directly focused on the cultural and creative industries, their analysis highlights the importance of understanding the social and spatial dimensions of economic activity, particularly in relation to gender and diversity.

Source: Own adapted from literature review

2.2.3. Research Gaps and Contribution

The cultural and creative industries have been the focus of academic research and policy initiatives for several decades. Scholars have investigated their economic and social impact, the implications of policies for their development, and the formation of creative clusters. In particular, there are several studies have investigated the cultural and creative industries in Europe, Spain, and Germany, highlighting their diversity and dynamics. However, there are still several gaps in the literature that this study aims to address (Table 3).

Table 3. Research Gaps in CCI's Literature

Research Gap	Description
Lack of comparative studies on size, composition, and specialization of CCIs	There are few studies comparing the size, composition, and specialization of cultural and creative industries or clusters in different countries and regions.
Link between CCIs and economic growth	More research is needed on how cultural and creative clusters can be leveraged to promote economic growth and social cohesion at the regional level.
Lack of comparative studies on Spain and Germany	Few studies compare the size, composition, and specialization of cultural and creative industries in both Spain and Germany.

Research Gap	Description
Limited research on implications in Spain and Germany	More research is needed on how cultural and creative clusters can be leveraged to promote economic growth and social cohesion in Spain and Germany.
Limited use of qualitative methods	Qualitative methods are underutilized in investigating the social and cultural dynamics of cultural and creative clusters.
Limited research on sustainability and resilience	More research is needed on how cultural and creative clusters can be sustained over time and adapt to changing economic, social, and cultural conditions.

Source: Own adapted from literature review

This study addresses several identified gaps in the literature. Providing a comparative analysis of the cultural and creative clusters in Spain and Germany contributes to the limited body of research comparing the size, composition, and specialization of these industries in different countries. Additionally, it examines the implications of these clusters for regional development, urban planning, and cultural policy, fulfilling another gap. This research specifically answers questions related to historical antecedents, spatial patterns at the regional level, and the impact of CCI factors on GDP and employment, thereby enhancing the understanding of the cultural and creative industries and their role in promoting economic growth and social cohesion in different regional contexts.

3. METHODOLOGY

3.1. Overview

The literature review on cultural and creative industries highlights several research gaps. Specifically, there is a lack of comparative studies between Germany and Spain on the size, composition, and specialization of CCIs. Additionally, there is a need for research exploring the link between CCIs and economic growth. Furthermore, there is limited use of both qualitative and quantitative methods in the literature. Overall, these gaps underscore the need for further research to better understand the dynamics and impact of CCIs in these two countries. Overall, these gaps underscore the need for further research to better understand the dynamics and impact of cultural and creative industries (CCIs) in Germany and Spain.

This scarcity of research impedes a comprehensive understanding of the factors that contribute to the success or failure of CCIs in both countries. Specifically, the historical antecedents that have contributed to the establishment of the current governance framework in Germany and Spain, as well as the spatial patterns that exist at the

regional level, particularly about CCIs, require further investigation. Additionally, research is needed to explore the CCI factors that have the greatest impact on GDP and employment in both countries. These research gaps represent important avenues for further investigation to develop a more complete understanding of the development and impact of CCIs in Germany and Spain.

The objective of this study is to conduct a comparative analysis of cultural and creative industries in Germany and Spain, to identify the main clusters within these industries and evaluate their influence on regional development. To achieve this objective, the following research questions will guide this study:

- What historical antecedents have contributed to the establishment of the current governance framework in Germany and Spain?
- What spatial patterns exist at the regional level in Germany and Spain, particularly about CCIs?
- Which CCI factors have the greatest impact on GDP and employment in Germany and Spain?

The data for this research is based on the Cultural and Creative Cities Monitor (2019) and the World Bank's World Development Indicators (2022). The decision to utilize data from the Cultural and Creative Cities Monitor for 2019 was motivated by several factors. First and foremost, this reputable source provides comprehensive and up-to-date information about the cultural and creative industries (CCI) in various European cities, ensuring the reliability and relevance of the data.

Furthermore, the 2019 edition offers a robust and diverse dataset, allowing for meaningful comparisons and in-depth analysis of the CCI's impact on local GDP across selected German and Spanish cities. By choosing this data, the study benefits from a wide range of indicators that encompass the economic, social, and cultural dimensions of these industries. Ultimately, the 2019 Cultural and Creative Cities Monitor data facilitates a thorough understanding of the relationship between CCI and GDP, as well as the identification of key contributing industries, providing a solid foundation for this research.

In addition, there is data from the World Bank's World Development Indicators (2022), utilized for GDP figures of Germany and Spain, it was driven by several reasons. As an internationally renowned institution, the World Bank is recognized for its accuracy, credibility, and reliability in providing economic and development data. Moreover, the World Development Indicators serve as a comprehensive and authoritative source for global development data,

including GDP figures. By using this data, the study ensures that the comparisons between Germany and Spain are based on accurate and current information, ultimately providing a solid foundation for assessing the relationship between cultural and creative industries and GDP in the two countries.

To gain a deeper understanding of what has happened on a local level, cross-sectional data from the Cultural and Creative Cities Monitor has been used to select fourteen Spanish and German cities with the highest GDP and employment levels in 2019. To measure the level of GDP before the pandemic as well as the economic contribution of the cultural and creative industries, this data set was selected.

Table 4.
Selected cities in each country, Spain and Germany

Country	Cities
Spain	Santiago, San Sebastián-Donostia, Bilbao, Zaragoza, Madrid, Burgos, Salamanca, Barcelona, Lleida, Valencia, Córdoba, Granada, Seville and Las Palmas.
Germany	Stuttgart, Karlsruhe, Heidelberg, Mannheim, Munich, Nuremberg, Berlin, Hamburg, Frankfurt, Hannover, Essen, Cologne, Bochum and Dresden.

Adapted from Cultural and Creative Cities Monitor 2018

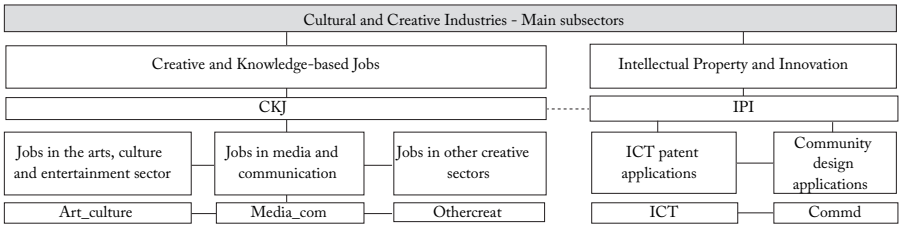
The selection of the cities in this study to measure the econometric relationship between employment in the cultural and creative industries (CCI) and employment in the corresponding municipalities/regions in Spain and Germany was based on their inclusion in the Cultural and Creative Cities Monitor index.

By focusing on these specific cities featured in the index, the study benefits from a consistent and robust dataset that provides comprehensive and reliable information about various aspects of CCI across European cities. This ensures that the comparisons and conclusions drawn are meaningful and well-grounded.

In addition, the cities included in the index represent a diverse range of cultural and creative contexts from both Spain and Germany, which enhances the generalizability of the findings and contributes to a more holistic understanding of the relationship between CCI employment and regional employment. By choosing these cities, the study can draw upon a wealth of data from the Cultural and Creative Cities Monitor index and effectively analyze the impact of CCI on employment within the selected municipalities and regions.

Creative knowledge-based jobs and intellectual property and innovation are the main creative industries, each of which is subdivided as follows (Figure 1):

Figure 1.
Cultural and Creative Industries



Adapted from Cultural and Creative Cities Monitor 2018

The decision to focus on the two sectors, Creative knowledge-based jobs and Intellectual Property and Innovation, in the econometric analysis for Spain and Germany, is based on several reasons.

Firstly, these two sectors represent key components of the cultural and creative industries (CCI) that drive economic growth and development. Creative knowledge-based jobs encompass occupations that require high levels of creative and intellectual skills, often leading to the generation of new ideas, products, and services. This in turn stimulates innovation and contributes to the competitiveness of both countries in the global market.

Secondly, Intellectual Property and Innovation are crucial factors in fostering economic prosperity, as they protect and incentivize the creation and dissemination of new ideas, technologies, and artistic works. These sectors not only generate economic value but also promote cultural diversity and social development. By examining these two sectors, the study can effectively capture the dynamic interplay between creativity, innovation, and economic growth in the context of Spain and Germany.

Finally, analyzing these sectors in an econometric model allows for a more nuanced understanding of their contributions to regional and national economies. It enables the identification of the magnitude and direction of the relationship between these sectors and GDP, providing valuable insights into how creative knowledge-based jobs and intellectual property and innovation impact economic development.

In summary, the choice of focusing on Creative knowledge-based jobs and Intellectual Property and Innovation is informed by their integral roles in driving economic growth and development, as well as their potential to provide meaningful insights into the relationship between CCI and GDP in Spain and Germany.

3.2. Econometric model

Utilizing a quantitative approach centered on econometric principles, this empirical subsection delves into the effects of cultural and creative industries (CCI) on local GDP. The primary objective is to ascertain the nature of the relationship between CCI's GDP and that of 14 German and 14 Spanish cities, whether direct or inverse and to evaluate the magnitude and significance of this relationship. Econometric methods are used to measure the impact of CCI on regional GDP. These methods analyze the relationship between variables, with some variables depending on others. By using regression analysis, we can determine the magnitude and direction of this relationship, as well as calculate the percentage contribution of each variable.

To enhance the comprehension of the Ordinary Least Squares (OLS) regression method, there is a comprehensive summary of the model. It begins with a deterministic regression equation (Equation 1): Equation 1. , where is the dependent variable of an endogenous variable, is an exogenous or independent variable, is the independent coefficient, and is the matrix of coefficients in relation to the exogenous variables. Iepresents the ccross-overdata ionwhich this is based, in the case of this research, represents the city in Germany or Spain. Econometrics by OLS includes a stochastic or probability term () (Equation 2): Equation 2. , where is a stochastic parameter that is normally distributed with a zero mean and constant variance ().

Over Equation 2 there are three criteria to characterize the relation between dependent and independent variables:

Table 5.
Criteria to characterize the relation between dependent and independent variables

Criteria	Description
Coefficient β_2	β_2 is the magnitude of the effect and the sign identifies if there is a positive or negative relation between Y_i and X_i. If the sign is positive, an increase of 1 unit in X_i produces an increase in β_2 times over Y_i. If the sign is negative, an increase of 1 unit in X_i produces a decrease in β_2 times over Y. In the case of CCI and GDP, the results of the coefficient explain if the CCI have a direct or inverse relationship with GDP. If there is a direct effect, an increase in CCI will have a positive impact in the local economies as the GDP will increase.
Significance of the variable X_i in explaining the variable Y_i	Accomplished by utilizing inference statistics to test the hypothesis. There are two tests performed to determine whether a general model is statistically significant and whether a specific variable is statistically significant.

Criteria	Description
	The first test is a global test of significance that is carried out through an F-test. Based on a null hypothesis where $\beta_2 = 0$, the criteria assume that the explanatory variables cannot explain the dependent variable Y_i. According to the alternative hypothesis, the explanatory variables are statistically significant to explain Y. As a rule of thumb, if the F-statistic is greater than the F-critic or the probability is less than the confidence level, the null hypothesis is rejected, and the model is significant as an explanation of Y. In addition, the Akaike criterion, also known as goodness-of-fit, is used to select the best suitable model. As a rule, the lower the criterion, the better, since it reflects the degree to which the variance is large. If the Global test does not yield significant results, the structure of the model and the selected, excluded, or leftover variables, the model should be revised.
R-squared indicator	If the model structure is not significative or R-squared is low, it is recommendable to try other specifications using transformation in the variables. The most important are models such as *lin-lin, lin-log, log-lin, log-log*.

Equation 2 represents the usual Lin-Lin Model, some transformations over the independent and/or dependent variable can be made such as the ones describes in equations 3, 4, and 5 (Log-Log Model **5**).

Lin-Log Model: Equation 3. $Y=\beta_1 + \beta_2 * Log(x) + \varepsilon$

Log-Lin Model: Equation 4. $Log(Y) = \beta_1 + \beta_2 x + \varepsilon$

Log-Log Model 5. $\beta_1 + \beta_2 * Log(x) + \varepsilon$

The endogenous variable is the local GDP or employment for cities in Germany and Spain, that measures the economic performance of a particular territory in a given period which could be quarterly, monthly, or yearly. This study uses yearly data. The exogenous variables are three general explanatory variables from the creative industries: Creative and Knowledge-based Jobs (CKJ) (Equation 7) and Intellectual Property and Innovation (IPI) (Equation 8). The general equation is the following:

Equation 6. $GDP\ or\ EMP = \beta_1 + \beta_2 * CKJ + \beta_3 * IPI + \varepsilon$

Equation 7. $CKJ = Art\_culture + Media\_com + othercreat$, where the variable represents the Jobs in arts, culture and entertainment, *Media_com* is the Jobs in media and communication, *othercreat* is the Jobs in other creative sectors.

Equation 8. $IPI = ICT + commd$, where *ICT* is the ICT patent applications and is Community design applications.

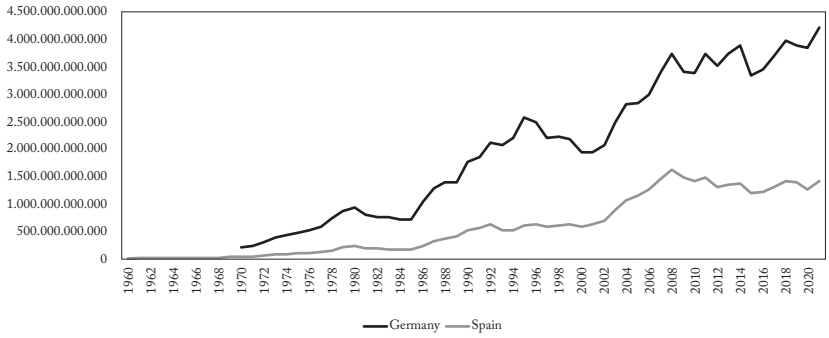
4. RESULTS AND ANALYSIS

This section presents the characterization of ICC in Spain and Germany, the spatial patterns of ICC and the Econometric model, the main results, and the discussion.

4.1. Characterization of ICC in Spain and Germany

There is a considerable difference between Germany and Spain in terms of their economic positions within the European Union. In the European Union, Germany is one of the leading countries, while Spain is far behind. The German GDP in 2021, was 4.2 billion dollars, while the Spanish GDP was 1.4 billion dollars, which translates into 29,14 percent and 9,83 percent of the European Union's GDP, respectively (World Bank, 2022[5])(Figure 2).

Figure 2.
GDP in Spain and Germany (Current EUR) – 1960 -2021



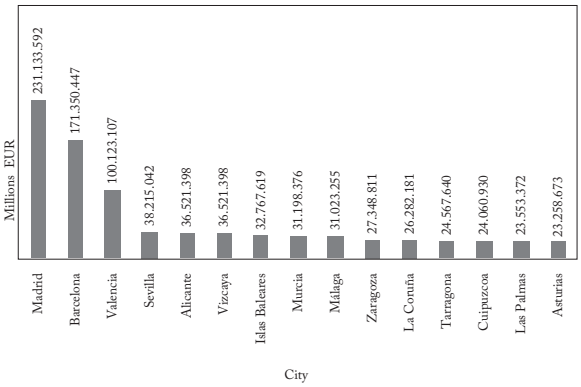
Source: Adapted from World Bank (2022)

In Spain, the most important cities in terms of GDP in 2018 are Madrid, Barcelona, and Valencia, which represent 40,44% of the GDP in Spain. The first fifteen cities represent 69,03% of all the economic activity (Figure 3). Concerning the spatial patterns, it is clear that there is a positive correlation between a high GDP and high levels of employment in cultural and creative industries. (Figure 4).

In Germany, in 2018, the three more important cities in terms of the GDP were Berlin, Hamburg, and Munich, which represented 24,84% of the total GDP in Germany in that year. The first fifteen cities represented more than half of the economy in Germany, equivalent to 55,79% (Figure 5). Similar to the case in Spain, there is a positive correlation between high GDP and high levels of employment in the ICC in Germany (Figure 6).

[5] https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=EU

Figure 3.
GDP of the 15th main Spanish cities (million EUR) - 2018

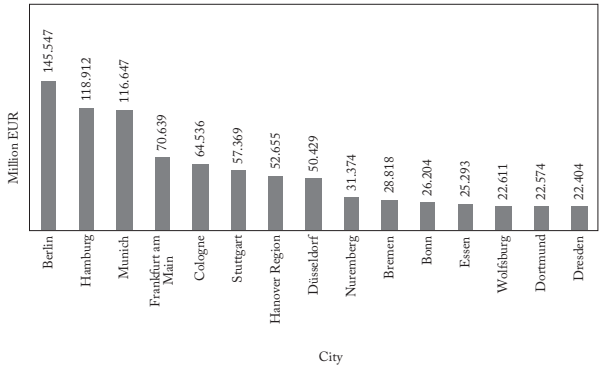


Source: Adapted from Spain's National Statistics Institute

Figure 4.
Spatial Relation between GDP and Cultural Employment in Spain- 2022

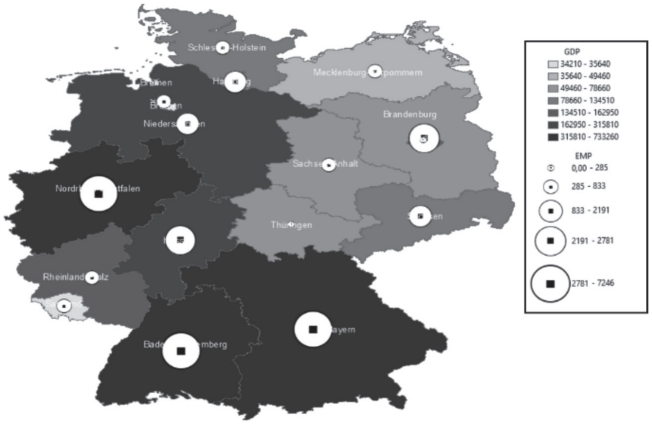
Source: Adapted from Spain's National Statistics Institute

Figure 5.
GDP of the 15th main German cities (million EUR) - 2018



Source: Adapted from Federal Statistical Office of Germany

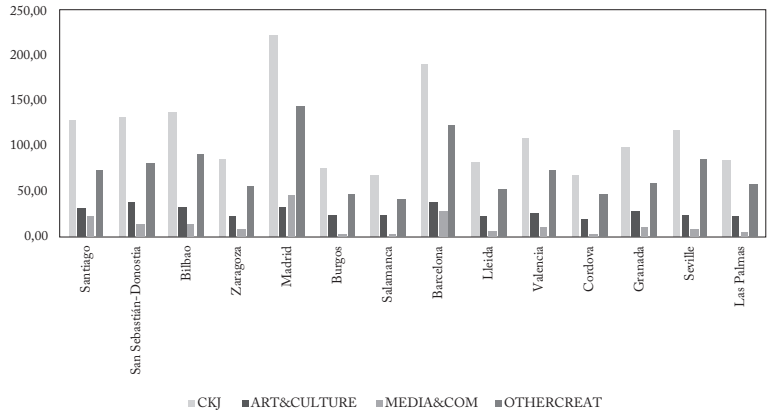
Figure 6.
Spatial Relation between GDP and Cultural Employment in Germany- 2022



Source: Adapted from Federal Statistical Office of Germany

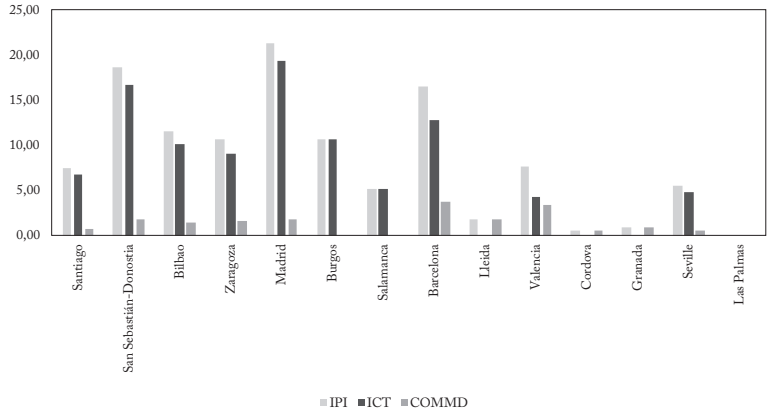
The Creative and Knowledge-based sector in Spain creates a greater number of jobs than Intellectual Property and Innovation. Art and culture are the second most important creative industry after 'Other creative industries'. ICT patent applications are the most significant subsector in terms of intellectual property. Madrid and Barcelona have a higher concentration of CKJs, while San Sebastian-Donostia, Barcelona, and Madrid have a higher concentration of intellectual property and innovation.

Figure 7.
Creative and Knowledge-based (CKJ) sector in Spain



Source: Adapted from Cultural and Creative Cities Monitor 2018

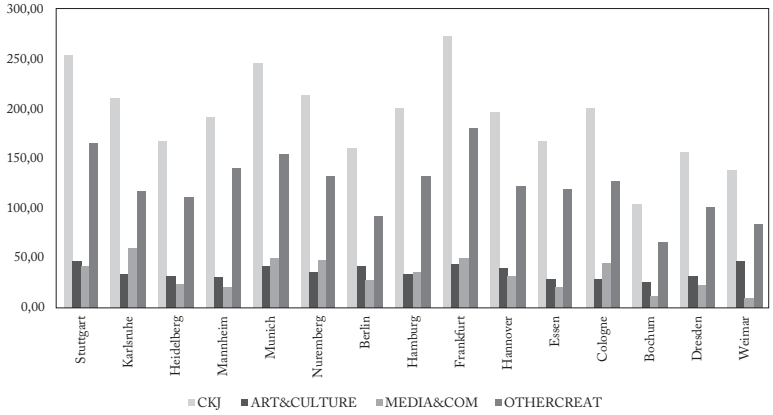
Figure 8.
Intellectual Property and Innovation (IPI) sector in Spain



Source: Adapted from Cultural and Creative Cities Monitor 2018

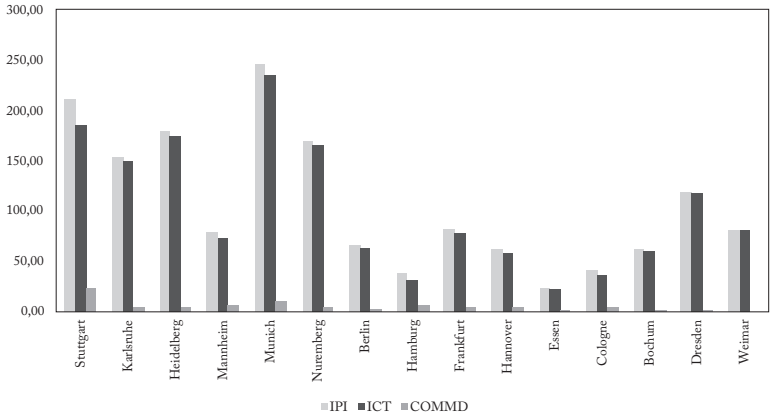
As opposed to Spain, Germany has a larger Intellectual Property and Innovation (IPI) subsector. In addition, the Creative and Knowledge-based sector (CKJ) plays a significant role in Germany. In Munich, Stuttgart, and Frankfurt, CKJ is more prevalent, and in Heidelberg, Munich, and Stuttgart, IPI is more prevalent.

Figure 9.
Creative and Knowledge-based (CKJ) sector in Germany



Source: Adapted from Cultural and Creative Cities Monitor 2018

Figure 10.
Intellectual Property and Innovation (IPI) sector in Germany



Source: Adapted from Cultural and Creative Cities Monitor 2018

4,2. Spatial Patterns on Cultural and creative industries clusters

The localization patterns of clusters in cultural and creative industries, specifically within the two sectors of Creative knowledge-based jobs and Intellectual Property and Innovation, exhibit unique characteristics in Germany and Spain (Florida, 2002; Boschma & Fritsch, 2009).

In Spain, the creative knowledge-based job clusters are primarily centered in major cities such as Madrid, Barcelona, and Valencia, which are known for their vibrant cultural scenes and thriving creative economies (López, 2017) (Figure 4). These cities offer a supportive ecosystem for creative professionals, nurturing innovation and attracting talent (Boix et al., 2015). Meanwhile, the Intellectual Property and Innovation clusters can be found in cities with a strong focus on research and development, such as Madrid, Barcelona, and Bilbao (García et al., 2020). These cities are home to renowned institutions, research centers, and innovation hubs that foster collaboration and generate economic value from intellectual property (Fernández-Mesa & Rodríguez, 2016).

In Germany, the creative knowledge-based job clusters are predominantly localized in cities with a rich cultural history and a reputation for artistic excellence, such as Berlin, Munich, and Hamburg (Krätke, 2010) (Figure 6). These cities provide a conducive environment for creative professionals to flourish and contribute to the growth of the creative industries (Lange et al., 2008). Intellectual Property and Innovation clusters, on the other hand, are concentrated in cities with robust research and development infrastructure, such as Stuttgart, Munich, and Frankfurt (Dörry & Schulz, 2018). These cities host top-tier universities, research institutions, and innovation centers that support the development and commercialization of new ideas and technologies (Fritsch & Schwirten, 1999).

Analyzing spatial localization patterns of clusters in CCI could give useful insight into the dynamics of CCI at a regional level (Figure 11 to Figure 14). This information can help inform policy decisions and strategies aimed at promoting the growth and development of the cultural and creative industries in both nations.

To analyze spatial patterns, the Getis-Ord General G technique has been employed. This spatial statistical method is used to identify spatial clustering or hotspots in data and assess spatial patterns. The Getis-Ord General G statistic measures the degree of spatial association among neighboring features, taking into account both the values of the features and their spatial arrangement. This technique can help pinpoint areas with spatially concentrated high or low values and assess the statistical significance of observed patterns.

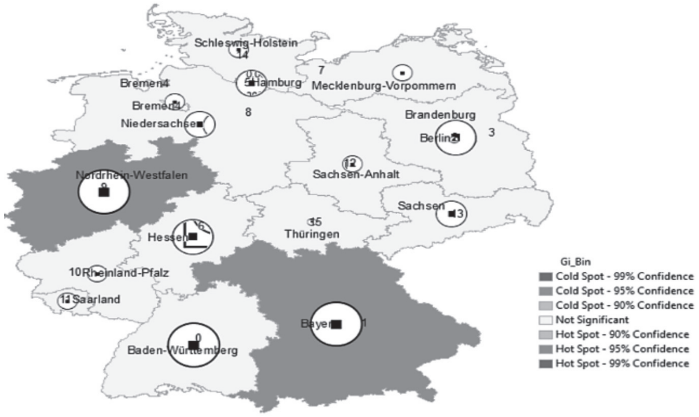
In Spain, it has been determined that the regions of Comunidad de Madrid and Catalonia exhibit hotspots or high spatial association, indicating significant clustering in the cultural and creative industries.

Similarly, in Germany, the regions with the most prominent clustering areas are Bavaria and North Rhine-Westphalia.

Figure 11.
Localization Patterns of Clusters in CCI in Spain – Getis-Ord General G

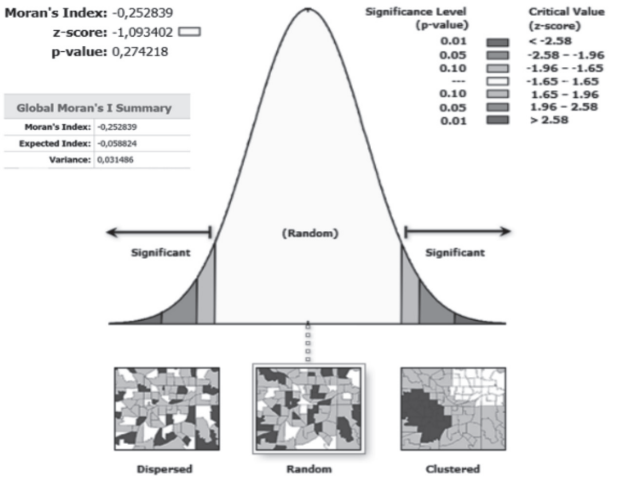
Source: Adapted from Spain's National Statistics Institute

Figure 12.
Localization Patterns of Clusters in CCI in Germany– Getis-Ord General G



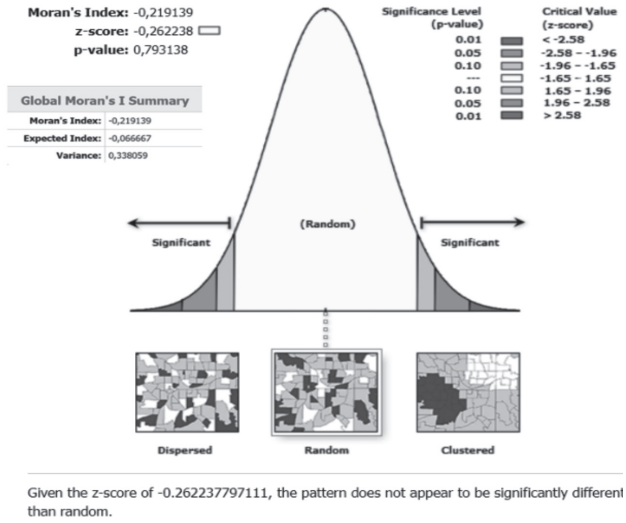
Source: Adapted from Federal Statistical Office of Germany

Figure 13.
Spatial Autocorrelation Report for Spain based on Moran's index



Source: Adapted from Spain's National Statistics Institute

Figure 14.
Spatial Autocorrelation Report for Germany based on Moran's index



Source: Adapted from Federal Statistical Office of Germany

Additionally, Moran's Index (Moran's I) was utilized to determine if there is spatial autocorrelation in the autonomous communities of Spain and the states of Germany. This measure helps establish whether the values of a variable are distributed randomly across a study area or display a specific spatial pattern. The results indicate that there is no significant spatial autocorrelation for both countries, suggesting that the data is distributed randomly.

4.3. Econometric Model Implementation and Data Analysis

This section provides the results of the model based on equation 6. The criteria to determine what model is going to be chosen is based on three indicators, described in the following table:

Table 6.
Criteria to identify the model.

Criteria	Description
Individual Significance	Using the t-statistic to determine if a variable is significant or not. In this exercise, it is proven, at a level of confidence of 95%, the null hypothesis: Ho: $\beta_i = 0$ or the alternative hypothesis Ha: $c \neq 0$. In the event that the probability is less than the significance level of 0,05, then, the null hypothesis is rejected, which means that the variable associated with that β_i is significant:
	Level of Significance: > 0.05 — Ho: $\beta_i = 0$: Null Hypothesis Accepted — Interpretation: Variable associated to β_i is not significative
	Level of Significance: < 0.05 — Ho: $\beta_i = 0$: Null Hypothesis Rejected — Interpretation: Variable associated to β_i is significative
Model significance	Based on the level of R2, the higher the level of R2, the more the explanatory variable(s) explain the endogenous variable. This level should exceed 60% or 0.6. In the event that it falls below 60%, it is recommended that the model be rejected.
Akaike criterion	Measures the variance in the model. As a result, the model chosen should have the least possible Akaike indicator.

Source: Own adapted from information collected in the literature review

4.3.1 Model Identification

a. General OLS estimation

Based on the Lin-Lin model, the results indicate that in Spain, the only significant variable for both GDP and employment as endogenous variables is IPI. This suggests that intellectual property and innovation jobs explain GDP and employment in Spain. In Germany, only CKJ passed the individual test, and the t-student test showed that both CKJ and IPI were significant for employment as an endogenous variable. Although CKJ and IPI passed the individual tests, their

R-squares are too low, at 46.94% and 41.90%, respectively, indicating that they cannot adequately explain GDP and employment (Table 7).

Table 7.
Results of econometric regression by OLS for Spain and Germany – Lin-Lin Model

Exogenous Variable	Variable	GDP			Employment		
		Coefficient	Probability	R2 (%)	Coefficient	Probability	R2 (%)
			Spain				
Creative and Knowledge-based Jobs	CKJ	0,327	0,997	62.94	-0.0255	0,235	72.05
Intellectual Property and Innovation	IPI	1.026,04	0,0325***		0,340	0,0068***	
			Germany				
Creative and Knowledge-based Jobs	CKJ	773.273	0.0095**	46,94	0.0316	0.0377	41.90
Intellectual Property and Innovation	IPI	-7.350	0.6642		0.00492	0.0089	

Source: The Cultural and Creative Cities Monitor
* The exogenous variable is significative in explaining the endogenous variable
** The exogenous variable is significative in explaining the endogenous variable and the R2 is the highest
** The exogenous variable is significative in explaining the endogenous variable and the R2 is above 60%

b Creative and Knowledge-based jobs

ICC in CKJ is divided into three sub-industries: *Art_culture, Media_com* and *othercreat* (see Figure 1 and Equation 7). According to the Lin-Lin model, in both Spain and Germany, there is a direct relationship between the variables. This means that an increase in each variable will lead to a corresponding increase in both GDP and employment. In Spain, *Art_culture* and *Media_com* are significant, but their R2 values are less than 38% in all cases (Table 8). Relative to the model transformations, in Spain, *media_com* showed significance in two models (Log-Log and Lin-Log) with an R-squared value near 60% (Table 9).

In Germany, all variables were significant, especially *another creat*, but the R-squared is less than 46% (Table 8). In all transformed models, the variables *media_com* and *other creat* were significant, in particular the Log-Log and Lin-Log models, the R-squared value for the German case is near 60% for the variable *media_com* with EMP as an endogenous variable (Table 10).

Table 8.
Results of econometric regression by OLS for Spain and Germany – Lin Lin Model

Exogenous Variable	Variable	GDP			Employment		
		Coefficient	Probability	R2 (%)	Coefficient	Probability	R2 (%)
			Spain				
Jobs in arts, culture and entertainment	*Art_culture*	803,626	0,0202 *	37,36	0,204	0,0378 *	31,21
Jobs in media and communication	*Media_com*	403,167	0,0370*	31,44	0,122	0.0212 *	36,91
Jobs in other creative sectors	*othercreat*	141,473	0,072	25,22	0,047	0.0233*	36
			Germany				
Jobs in arts, culture and entertainment	*Art_culture*	8.036.260	0,0202*	37,35	0,204	0,0378*	31,21
Jobs in media and communication	*Media_com*	209,89	0,0055**	43,44	0,108	0,0061**	42,65
Jobs in other creative sectors	*othercreat*	107,66	0,0039**	45,88	0,047	0,0218*	32,22

Source: The Cultural and Creative Cities Monitor
* The exogenous variable is significative in explaining the endogenous variable because the probability is less than 0.05
** The exogenous variable is significative in explaining the endogenous variable and the R2 is the highest
** The exogenous variable is significative in explaining the endogenous variable and the R2 is above 60%

Table 9.
Results of econometric regression by OLS for Spain– Lin Log, Log Lin, and Log-Log Models

Exogenous Variable	Model	GDP			Employment		
		Coefficient	Probability	R2 (%)	Coefficient	Probability	R2 (%)
			Spain				
Art_culture	*Lin-log*	22881.1	0.0200*	37,44	54.476	0.0545	27,43
Art_culture	*Log-log*	12.485	0.0294*	33.72	0.0872	0.0545	27,43
Art_culture	*Log-Lin*	0.0438	0.0301*	33.51	0.0033	0.00378	31.21
Media_com	*Log-log*	0.1851	0,0163*	34,74	0.0498	0,0005**	58,9
Media_com	*Lin-log*	5518.3	0,0101*	38,72	35.367	0,0005**	58,9
Media_com	*Log-lin*	0.0070	0,0095*	39,18	0.0015	0,0061*	42,65
othercreat	*Lin-log*	12140.6	0,0055**	43,45	59.662	0,0099*	38,86
othercreat	*Log-log*	0.4086	0,0094*	39,25	0.0840	0,0099*	38,86
othercreat	*Log-lin*	0.0036	0,0069*	41,65	0.0006	0,021*	32,22

Source: The Cultural and Creative Cities Monitor
* The exogenous variable is significative in explaining the endogenous variable because the probability is less than 0.05
** The exogenous variable is significative in explaining the endogenous variable and the R2 is the highest
** The exogenous variable is significative in explaining the endogenous variable and the R2 is above 60%
Source: Own adapted from information collected in the literature review

Table 10.
Results of econometric regression by OLS for Germany – Lin Log, Log-Lin, and Log-Log Models

Exogenous Variable	Model	GDP			Employment		
		Coefficient	Probability	R2 (%)	Coefficient	Probability	R2 (%)
			Germany				
Art_culture	*Lin-log*	2.845.442	0.9690	0.00	35.018	0.3455	0.07
Art_culture	*Log-log*	0.0064	0.9802	0.00	0.0493	0.3455	6.87
Art_culture	*Log-Lin*	0.0000	0.9924	0.00	0.0010	0.4596	4.28
Media_com	*Lin-log*	5.572.911	0.0120*	39.56	35.156	0.0008**	58.91
Media_com	*Log-log*	0.1866	0.0196*	35.25	0.0495	0.0008**	58.92
Media_com	*Log-Lin*	0.0070	0.0124*	39.26	0.0015	0.0076*	43.32
othercreat	*Lin-log*	12191.35	0.0070**	43.99	59.359	0.0128*	39.03
othercreat	*Log-log*	0.4099	0.0120*	39.55	0.0836	0.0128*	39.03
othercreat	*Log-Lin*	0.0036	0.0093*	41.74	0.0007	0.0259*	32.72

Source: The Cultural and Creative Cities Monitor
* The exogenous variable is significative in explaining the endogenous variable because the probability is less than 0.05
** The exogenous variable is significative in explaining the endogenous variable and the R2 is the highest
** The exogenous variable is significative in explaining the endogenous variable and the R2 is above 60%

c. Intellectual Property and Innovation (IPI)

For the variable IPI, the sub-industries are *ICT* and *Commd* (see Figure 1 and Equation 8). In Spain, using a Lin-Lin model, ICT is significant, the R-squared is near 60% for both cases, GDP and employment (Table 11). The highest value is reached with the Lin-Log model (R-squared 64%) (Table 12). In the Lin-Lin model from Germany, every variable is significant (Table 11). However, in the transformed models—Lin-Log and Log-Log—only the variable Commd is significant, and the R-squared value reaches just 50% (Table 12).

Table 11.
Results of econometric regression by OLS for Spain and Germany – Lin-Lin Model

Exogenous Variable	Variable	GDP			Employment		
		Coefficient	Probability	R2 (%)	Coefficient	Probability	R2 (%)
			Spain				
ICT patent applications	*ICT*	998,519	0,0018**	58,87	0.25017	0.0016**	57.90
Community design applications	*Commd*	3.592,73	0.0684	25,03	1,072	0,0477*	28,84
			Germany				
ICT patent applications	*ICT*	13,92	0,485	3,54	0,014	0,150	14,2
Community design applications	*Commd*	399,61	0,056	23,69	0,160	0,151	14,14

Source: The Cultural and Creative Cities Monitor
* The exogenous variable is significative in explaining the endogenous variable because the probability is less than 0.05
** The exogenous variable is significative in explaining the endogenous variable and the R2 is the highest
** The exogenous variable is significative in explaining the endogenous variable and the R2 is above 60%

Table 12.
Results of econometric regression by OLS for Spain and Germany – Log-Log and Log Lin Models

Exogenous Variable	Model	GDP			Employment		
		Coefficient	Probability	R2 (%)	Coefficient	Probability	R2 (%)
			Spain				
ICT	*Log-log*	0.004486	0.0016**	55,53	0.0586	0.0142 *	54,92
	Log-Lin	0.0547	0.015*	51,59	0.0044	0.0016**	57,89
	Lin-Log	11527,12	0.0054***	64,05	36.611	0.0142*	54,92
Commd	*Log-log*	0.4611	0.0298*	42.47	0.0328	0.0924	28,25
	Log-Lin	0.2207	0.0489*	28,57	0.017	0.0477*	28,88
	Lin-Log	20.536	0.0924	28,25	20.535	0.0924	28.25
			Germany				
ICT	*Log-Lin*	0.0004	0,557	2,72	0.0002	0.1626	14.42
	Lin-log	541.30	0,779	0,62	14.404	0.1311	16.65
	Log-Log	0.01284	0.8511	0.03	0.0203	0.1311	16.65
Commd	*Lin-log*	404.121	0.037*	51.86	13.242	0.0667	25.31
	Log-log	0.1425	0.0044*	50.51	0.0187	0.0667	25.31
	Log-Lin	0.014	0.0766	22.15	0.0023	0.1637	14.36

Source: The Cultural and Creative Cities Monitor
* The exogenous variable is significative in explaining the endogenous variable because the probability is less than 0.05
** The exogenous variable is significative in explaining the endogenous variable and the R2 is the highest
** The exogenous variable is significative in explaining the endogenous variable and the R2 is above 60%

4.3.2 Stylized Factors and choosing model

Using the information from the last section, the stylized factors are the following Table 13.:

In summary, Spain and Germany share a similar Log-Log model with the endogenous variable being the logarithm of employment and the exogenous variable being jobs in media and communication, corresponding to the CKJ variable. Intriguingly, when CKJ and IPI are combined in a Lin-Lin Model, CKJ is rejected for Spain but accepted for Germany. The logarithmic transformation of variables to a growth rate, measured by employment in this case, enables the assessment of the ICC industry's significance to economic growth. However, the employment variable's response is marginal in both countries. In the Spanish case (Equation 14), a 1% change in jobs in media and communication results in a 2.62% change in regional growth, as measured by employment. Similarly, in the German case (Equation 15), a 1% change in jobs in media and communication leads to a 4.95% change in regional growth.

Table 13.
Stylized factors and identification of main factors of cultural and creative industries that impact the most the regional growth in Spain and Germany

Stylized factor	Spain		Germany	
Most Significant Variable	IPI with GDP and EMP as endogenous variables (Table 2)		CKJ with GDP and EMP as endogenous variables (Table 2)	
Contrasting results	In Figure 6 and 7, the CKJ sector seems to be more dominant. However, the data demonstrates that IPI has a grater influence, as a single unit of IPI has a more significant impact compared to one unit of CKJ.		In Figure 8 and Figure 9, it becomes clear that both the CKJ and IPI sectors play substantial roles	
Deceiving multivariate tests, low R-squares	Conducting multivariate regression analyses reveals a general absence of global and individual significance for the variables with a few notable exceptions. However, even those variables that are statistically significant in termsof R-squareddo not adequately explain GDP or employment in the majority of cases (Table 2). A plausible explanation could be that other vriables exert a more significant influence on the economic growth of Spain and Germany compared to the variables related to cultural and creative industries.			
The most critical variables and selectecl models: best represent the influential factors within the ICC concerning economic growth	Model 1. Log-Log Employment and Mediacom Lemp = 1+ 2 * Lmediacom + E Equation 9. Lemp=B1+B2*Lmediacom+E, Lemp is the logarithm of employment and Lmediacom the Logarithm of mediacom		Model 4. Log-Log Employment and Mediacom Equation 9. Lemp=B1+B2*Lmediacom+E Lemp is the logarith of employment and Lmediacom the Logarithm of mediacom	
	Model 2. Lin-Log Employment and Mediacom Equation 10. Emp=B1+B2*Lmediacom+E		Model 5. Lin-Log Employment and Mediacom Equation 10. Emp=B1+B2*Lcommd+E	
	Model 3. Lin-Log GDP and ICT Equation 11. GDP=B1+B2*LICT+E LICT is the ICT's logarithm		Model 6. Log-Log GDP and Commd Equation 12. LGDP=B1+B2*Lcommd+E LGDP is the GDP's logarith and Lcommd is the Commd's logarithm	
			Model 7. Lin-Log GDP and Commd Equation 13. GDP=B1+B2*Lcommd+ E	
Akaike Criterion: As a criterion for choosing one of these three models, the Akaike value should be the one with the lowest value, representing the model with the lowest variance.	Model Model l. Model 2. Model 3.	Akaike Criterion -39.354 43.338 199.621	Model Model 4. Model 5. Model 6. Model 7.	Akaike Criterion -45.583 39.659 -12.462 192.051
Best representation	Model 1 provides the best representation of the relationship between the creative and cultural industries in Spain: Equation 14. Lemp=4.0588+0.022*Lmediacom+E		Model 4 provides the best representation of the relationship between the creative and cultural industries in Germany. Equation 15. Lemp=4.1196+0.0495+Lmediacom+E	

Source: Own adapted from information collected in the literature review

4.3.3 Discussion of Results

Based on the multivariate analysis, it was concluded that only the IPI sector in Spain showed significant results when considering GDP and employment as endogenous variables. On the other hand, in Germany, the CKJ variable was found to be significant for both

endogenous variables, and in addition to CKJ, the IPI sector was also found to be significant for employment.

However, despite the statistical significance, the R-squared values for the selected models in both countries were not particularly high, indicating that the explanatory variables may not fully account for the variations in GDP and employment. It is worth noting that public expenditure in the cultural and creative industries could have a positive impact on their development and contribution to regional economic growth in Spain and Germany.

In Spain, most of the models for the CKJ sector were accepted, except some of the transformed models in the arts and culture sector, in which employment was endogenous. Additionally, the IPI sector has been widely accepted in individual significance tests.

In contrast, Germany has rejected most of the Lin-Lin and transformed models for IPI as well as for some variables of the CKJ, particularly Art and Culture. Although many of the run models considered the individual significance of the exogenous variables, the R-square criterion indicated that with few exceptions, the explanatory variables explained too little about GDP and employment, despite the general acceptance of their significance.

After examining the high R-squared values of the models, three models were selected for Spain and four models for Germany. The Akaike criterion was applied to determine which model had the lowest variance. Ultimately, both Spain and Germany were fitted with a Log-Log model with the endogenous variable being the logarithm of employment and the exogenous variable being the logarithm of jobs in media and communications, which corresponded to the CKJ sector.

Although there appears to be a positive relationship between the explanatory variable from the ICC industries and regional growth, proxied by employment, the impact is marginal. Nonetheless, the results indicate that there is a significant relationship between the growth rates of the ICC industries and GDP, as both the explanatory and dependent variables demonstrate statistical significance. However, the ICC industries still require further development to contribute more to regional economic growth in Spain and Germany. Therefore, public expenditures in these sectors could play a decisive role in promoting their further development.

5. CONCLUSIONS

The cultural and creative industries have become increasingly significant in recent years due to their potential for promoting social and economic development. These industries are diverse and encompass a wide range of activities such as art, music, film, television, publishing, fashion, design, and advertising, among others. They have become key drivers of innovation, job creation, and urban revitalization, contributing to the development of vibrant and dynamic cities.

This study aimed to conduct a comparative analysis of cultural and creative industries in Germany and Spain, to identify the main clusters within these industries and evaluate their influence on regional development. In this study, we sought to understand the historical antecedents that contributed to the establishment of the current governance framework in Germany and Spain, as well as identify the spatial patterns that exist at the regional level in both countries, particularly regarding the cultural and creative industries (CCIs). Furthermore, we aimed to determine which CCI factors have the greatest impact on GDP and employment in Germany and Spain.

First, we examined the historical antecedents that contributed to the establishment of the current governance framework in both countries. This involved analyzing the historical context and key events that shaped the development of policies and institutions related to CCIs. In the literature review, we discussed the significance of creative clusters and what was done in terms of creative industries, GIS, and spatial econometrics, identifying research gaps and contributions.

Second, we investigated the spatial patterns that exist at the regional level in Germany and Spain concerning CCIs. To achieve this, we employed spatial analysis techniques such as the Getis-Ord General G and Moran's Index to identify spatial clustering or hotspots and assess the degree of spatial autocorrelation among neighboring regions. It was identified in Spain that the hot spots are located in the 'Comunidad de Madrid' and 'Catalunya'. In Germany, the most important hot spots of CCI are located in 'Bayern' and 'Nordrhein-Westfalen'.

Finally, we aimed to determine which CCI factors have the greatest impact on GDP and employment in Germany and Spain. We found that the number of jobs in media and communication, which is part of the broader creative and knowledge-based jobs (CKJ) category, is the most statistically significant determinant of economic growth. For this analysis, we used the employment (EMP) variable as a proxy for economic growth.

In conclusion, this study contributes to a better understanding of the dynamics of cultural and creative clusters in Spain and Germany, providing insights into their size, composition, and specialization, and their implications for regional development, urban planning, and cultural policy. Our findings can help policymakers, urban planners, and business leaders to make informed decisions and leverage cultural and creative clusters to promote economic growth and social cohesion in their regions.

REFERENCES

Ahearne, J. (2003). German cultural policy: A federal or unitary matter? *Regional & Federal Studies*, *13*(3), 46–64. https://doi.org/10.1080/1359756032000118564

Barrado-Timón, A., Palacios, R., & Hidalgo-Giralt, P. (2020). Análisis de la política cultural española en la primera década del siglo XXI: Gobernanza, territorialización y participación. *Revista Española de Ciencia Política*, *52*, 47–70.

Boix, R., & Fernandez-Molina, A. M. (2010). Creative industries in Europe: Drivers of new sectoral and spatial dynamics. *European Planning Studies*, *18*(7), 1037–1056. https://doi.org/10.1080/09654311003776297

Boix, R., Hervás-Oliver, J. L., & De Miguel-Molina, B. (2015). Micro-geographies of creative industries clusters in Europe: From hot spots to assemblages. *Papers in Regional Science*, *94*(4), 753–772.

Bonet, L., & Négrier, E. (2010). *La territorialisation des politiques culturelles*. Presses de l'Université du Québec.

Boschma, R. (2005). Proximity and innovation: A critical assessment. *Regional Studies*, *39*(1), 61–74. https://doi.org/10.1080/0034340052000320887

Boschma, R. A., & Fritsch, M. (2009). Creative class and regional growth: Empirical evidence from seven European countries. *Economic Geography*, *85*(4), 391–423.

Brooks, J. F. (2003). Cultural policy and cultural diplomacy in the Spanish transition to democracy. *International Journal of Cultural Policy*, *9*(3), 281–298.

Compendium of Cultural Policies & Trends. (2022). *Compendium of Cultural Policies & Trends*. https://www.culturalpolicies.net/

Culture Commission of the Spanish Federation of Municipalities and Provinces. (2002). *The Charter of Cultural Rights of Citizens*. Spanish Federation of Municipalities and Provinces.

Dörry, S., & Schulz, C. (2018). The changing role of the financial sector in the innovation systems of Germany's Frankfurt/Rhine-Main region. *Journal of Economic Geography*, *18*(3), 623–648.

Escalona Orcao, A. I., Sáez Pérez, L. A., & Sánchez-Valverde García, B. (2017). The role of culture in economic development: The case of Spain. *International Journal of Cultural Policy*, *23*(4), 461–474.

European Commission. (2019). *European Innovation Scoreboard*. https://ec.europa.eu/growth/industry/policy/innovation/scoreboards_en

European Commission. (2021). *Creative Europe*. https://ec.europa.eu/programmes/creative-europe/node_en

Federal Government, Commissioner for Culture and the Media. (2014). *Germany's cultural policy*. https://www.bundesregierung.de/resource/blob/975010/388296/e66ee27a1eb8e72c17f039d7b9c69e09/kulturstaatsministerin-data.pdf?download=1

Fernández-Mesa, A., & Rodríguez, A. (2016). Innovation and clusters: Understanding the differences among the European regions. *Research Policy*, *45*(9), 1789–1802.

Florida, R. (2002). *The rise of the creative class: And how it's transforming work, leisure, community and everyday life*. Basic Books.

Fritsch, M., & Schwirten, C. (1999). Enterprise-university co-operation and the role of public research institutions in regional innovation systems. *Industry and Innovation*, *6*(1), 69–83.

García, Á. J., Fernández-Mesa, A., & Alegre, J. (2020). The relationship between clusters, innovation, and firm competitive performance: An empirical study in advanced economies. *European Planning Studies*, *28*(4), 729–746.

Gu, F., Chen, Y., & Lu, X. (2014). Creative industries and regional economic development: Evidence from China. *Applied Economics Letters*, *21*(10), 691–694. https://doi.org/10.1080/13504851.2013.873195

Guzman-Parra, V. F., & Femenia-Serra, F. (2017). The role of cultural and creative industries in regional innovation processes. *The Annals of Regional Science*, *59*(1), 109–132. https://doi.org/10.1007/s00168-017-0809-7

Holy Roman Empire. (800–1806). *Holy Roman Empire*. Encyclopædia Britannica. https://www.britannica.com/place/Holy-Roman-Empire

Krätke, S. (2010). 'Creative cities' and the rise of the dealer class: A critique of Richard Florida's approach to urban theory. *International Journal of Urban and Regional Research*, *34*(4), 835–853.

Kraus, K., & Böhm, S. (2013). Hamburg – a creative city. En M. Henseler (Ed.), *Creative industries in Germany: Mapping the field* (pp. 71–82). Springer. https://doi.org/10.1007/978-3-531-18946-2_6

Kultur-und Kreativwirtschaft. (2020). *The creative industries in figures*. https://kultur-kreativ-wirtschaft.de/KUK/Navigation/EN/Facts-and-Figures/creative-industries-in-figures.html

Landoni, P., Mancuso, P., Mottura, P., & Nuccio, M. (2020). Cultural policy and the city. *City, Culture and Society*, *21*, Article 100335. https://doi.org/10.1016/j.ccs.2020.100335

Lange, B., Kalandides, A., Stöber, B., & otros. (2008). The creative industries in Germany. En H. Anheier & Y. R. Isar (Eds.), *Cultures and globalization: The cultural economy* (pp. 75–92). Sage Publications.

Lange, B., Kalandides, A., & Stöber, B. (2008). The myth of the creative class: The spatial distribution of the creative class in Berlin. *4th International Conference of the International Forum on Urbanism (IFoU)*, Amsterdam/Delft.

Li, Q. C., Faggian, A., & McCann, P. (2017). Creative industries, buzz and the importance of proximity: Evidence from an Ita-

lian case study. *Urban Studies*, *54*(13), 3029–3048. https://doi.org/10.1177/0042098016665613

López, J. M. (2017). Creative economy in Spain: A new sectorial approach. *Journal of Business Research*, *84*, 534–541.

Magadán-Díaz, M., & Rivas-García, J. (2021). Cultural policies in times of COVID-19. *The Innovation Journal: The Public Sector Innovation Journal*, *26*(2), 1–22.

Maskell, P., & Malmberg, A. (1999). Localised learning and industrial competitiveness. *Cambridge Journal of Economics*, *23*(2), 167–185. https://doi.org/10.1093/cje/23.2.167

Ministerio de Cultura y Deporte. (2021). *Anuario de Estadísticas Culturales 2021*.

Ministerio de Educación, Cultura y Deporte. (2017). *Plan Cultura 2020*. https://www.culturaydeporte.gob.es/dam/jcr:0265de94-70f6-409e-a1a0-eb0d7f31ed97/plan-cultura-2020.pdf

Moilanen, T., & Vuorinen, R. (2015). Creative economy and regional development: New avenues for innovation policy. *Regional Science Policy & Practice*, *7*(4), 165–176. https://doi.org/10.1111/rsp3.12077

Porter, M. E. (1998). Clusters and the new economics of competition. *Harvard Business Review*, *76*(6), 77–90.

Rius Ulldemolins, J., & Zamorano, M. M. (2015). Culture and city branding in Spanish urban cultural policies. *International Journal of Cultural Policy*, *21*(2), 219–236.

Rodríguez-Pose, A., & Iammarino, S. (2006). SMEs, regional growth and unemployment in the UK. *Regional Studies*, *40*(2), 141–153. https://doi.org/10.1080/00343400500450237

Souza, A. (2006). The cultural industry in the context of globalization. *Espacios*, *27*(4).

SPD-Green coalition. (1998). *SPD-Green coalition*. Bundesregierung. https://www.bundesregierung.de/breg-en/chancellor/previous-governments

Taylor Buck, N., & While, A. (2017). Competitive urbanism and the limits to smart city innovation: The UK Future Cities initiative. *Urban Studies*, *54*(2), 501–519. https://doi.org/10.1177/0042098015583625

UNCTAD. (2010). *Creative economy: A feasible development option*. United Nations Conference on Trade and Development. https://unctad.org/system/files/official-document/ditcted20102_en.pdf

UNCTAD. (2015). *Creative economy outlook and country profiles: Trends in international trade in creative industries*. United Nations Conference on Trade and Development. https://unctad.org/system/files/official-document/ditcted20155_en.pdf

UNESCO. (2018). *Creative Cities Network*. https://en.unesco.org/creative-cities/

van Oort, F., Knoben, J., & Fornahl, D. (2012). Localized learning, innovation and the life sciences: Spatial distribution of university research and the location of biotechnology firms. *The Annals of Regional Science*, *48*(2), 443–463. https://doi.org/10.1007/s00168-010-0429-7

World Bank. (2022). *World Development Indicators: GDP (current US$) - Germany, Spain*. https://databank.worldbank.org/reports.aspx?source=world-development-indicators

Wyszomirski, M. J. (1998). Rethinking the public and private sectors in cultural policy. En K. V. Mulcahy & C. Swaim (Eds.), *Public Policy and the Arts* (pp. 1–14). Westview Press.

Yudice, G. (2021). The importance of cultural policy in the midst of the pandemic. *Revista de Políticas Culturales*, *1*, 9–18.

Zamorano, M. M. (2017). La política cultural autonómica en España. En M. M. Zamorano (Ed.), *Política y gestión cultural en las comunidades autónomas* (pp. 13–37). Difusión Jurídica y Temas de Actualidad.

Zamorano, J. M., & Rius, M. (2018). Federalism and cultural policy in Germany: A multi-level governance approach. *International Journal of Cultural Policy*, *24*(6), 827–846. https://doi.org/10.1080/10286632.2017.1393545

Zimmermann, F. (2016). The German cultural policy system. En A. Smith, A. Aronsson, & B. Eriksson (Eds.), *The cultural and creative industries: A literature review* (pp. 121–133). Kulturbryggan. https://www.diva-portal.org/smash/get/diva2:985237/FULLTEXT01.pdf

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COMPARATIVE ANALYSIS OF THE IMPACT OF CULTURAL AND CREATIVE INDUSTRIES ON GDP AND EMPLOYMENT: A CASE STUDY OF GERMANY AND SPAIN*
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Análise comparativa do impacto das indústrias culturais e criativas no PIB e no emprego: um estudo de caso da Alemanha e da Espanha

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