



Territorial Specialization of Cultural and Creative Industries in Four Mexican Urban Nodes

Camilo Patiño García¹ 

¹ Universidad de Guadalajara, Puerto Vallarta, Jalisco, 48280, México
camilo.patino@academicos.udg.mx¹

Abstract. Cultural and creative industries (CCI) play a strategic role in urban economic transformation; however, evidence regarding their territorial specialization in developing countries remains limited and methodologically fragmented. This study analyzes the territorial specialization of CCI across four Mexican urban nodes—the Guadalajara Metropolitan Area (GMA), Puerto Vallarta, Oaxaca, and Tijuana—selected through a maximum variation sampling strategy to capture contrasting economic and cultural profiles. Using establishment, employment, and value-added data from DENU 2026, the 2024 Economic Census, and INEGI geostatistical boundaries, location quotients (LQ) were calculated for 120 SCIAN activity classes derived from Mexico’s Culture Satellite Account (CSCM). Inter-node differences were subsequently evaluated using Chi-square analysis. The results reveal significant specialization differences across the analyzed nodes ($\chi^2 = 204.20$, $p < 0.001$). The GMA exhibits specialization in audiovisual and software activities (LQ value added = 2.20) and selected artisanal subsectors such as leather and footwear (LQ value added > 2.20); Oaxaca shows strong specialization in heritage and museums, performing arts, and photography, where a limited number of establishments concentrate a substantial share of value added (LQ value added > 40); Puerto Vallarta is characterized by specialization in performing arts and cultural organizations; and Tijuana demonstrates strengths in audiovisual activities and cultural manufacturing. The findings provide systematic comparative evidence of territorial differentiation within Mexico’s creative economy and contribute to the international literature by demonstrating that cultural and creative industries evolve through distinct territorial specialization pathways associated with metropolitan, heritage-based, tourism-oriented, and transborder development models.

Keywords: Creative industries, cultural economy, location quotient, and territorial specialization.

1 Introduction

1.1 Research Problem

Cultural and creative industries (CCI) have become a central component of contemporary economies and urban productive systems. According to the latest report by the United Nations Conference on Trade and Development (UNCTAD) [1], these industries contribute 3.1% of global Gross Domestic Product (GDP), generate revenues of approximately USD 2.3 trillion, and account for nearly 6.2% of total employment worldwide. These figures exhibit a sustained growth trend, although important differences persist across developed and developing economies, as well as among specific CCI dimensions; The UNCTAD classifies the Cultural and Creative Industries (CCIs) into 11 creative industry groups:

advertising and marketing; architecture; audiovisual, multimedia, and photography; books and publishing; cultural and natural heritage; design (product, graphic, and fashion design); manufacturing of crafts and design goods; music, performing arts, and visual arts; software, video games, information technology, and web services; and research and development. The report highlights a clear global transition from manufacturing-based cultural activities toward knowledge-intensive creative services, with increasing specialization in design, advertising, software, architecture, and audiovisual production, all of which are closely linked to the development of artificial intelligence. However, the way in which this transition manifests itself within specific territories of developing countries remains unclear. As noted in the report itself, methodological differences and limitations in the availability of national-level data restrict cross-country comparisons and hinder deeper analysis.

The analysis of CCI across cities, urban systems, and intra-national specialization patterns has demonstrated that creative-sector growth does not occur uniformly across territories. Valdivia López et al. [2] found that the linkages of CCI vary significantly among cities within the Mexican urban system, with regional disparities influencing their distribution. Méndez et al. [3] examined the spatial logic of creative sectors in Spain at different geographical scales, analyzing variations in concentration across urban areas. Sánchez Serra [4] identified that traditional external economies—namely localization and urbanization economies—play an important role in shaping the location of creative industries, complemented by sector-specific forces operating within the creative economy across five European countries. Similarly, Prada Trigo and Jiménez Idrovo [5] and Mercado Celis [6], in their analyses of Ecuador and Mexico City respectively, found evidence of spatial clustering within creative activities. Meanwhile, Opaja Alegre and Esponda Alva [7] developed spatial analytical models for Lima, identifying distinct concentrations of creative activity throughout the city.

The analysis of Cultural and Creative Industries (CCIs) across cities, urban systems, and subnational specialization has shown that their growth does not occur uniformly across territories. Valdivia López et al. [2] found that the linkages among CCIs are heterogeneous across cities within the Mexican urban system, with regional disparities affecting their spatial distribution. Méndez et al. [3] examined the spatial logic of the creative sectors in Spain at different geographical scales, analyzing how their concentration varies across urban areas. Sánchez Serra [4] identified that traditional external economies (localization and urbanization economies) influence the location of creative industries, complemented by sector-specific forces across five European countries. Likewise, Prada Trigo and Jiménez Idrovo [5] and Mercado Celis [6] analyzing Ecuador and Mexico City, respectively, found evidence of spatial clustering, whereas Opaja Alegre and Esponda Alva [7] developed spatial analytical models for Lima, identifying distinct concentrations of creative activity.

In Mexico, according to data from the Culture Satellite Account of Mexico (CSCM) [8], the cultural sector generated a value added of MXN 865.7 billion in 2024, representing 2.8% of the national Gross Domestic Product (GDP), and employed 1,430,528 people, accounting for 3.5% of total national employment. Economic activity is particularly concentrated in handicrafts, digital and internet content, audiovisual media, design, and creative services. Despite its economic significance, the territorial distribution and specialization of cultural and creative industries (CCI) have received limited systematic attention, as most national studies focus on aggregate estimates. This situation poses important methodological challenges for the study of CCI, beginning with the classification systems used by UNCTAD and the CSCM, whose conceptual foundations, sectoral components, and classification codes differ substantially.

Studies such as that of Canizalez Ramírez and Avilés Ochoa [9] have proposed a classification framework based on the North American Industry Classification System (SCIAN), aimed at integrating occupations involved in the creation, production, and distribution of cultural goods in order to provide a statistical framework suitable for comparative studies of similar cities. Likewise, the work of Villarreal, Gasca, and Flores [10] on the Monterrey Metropolitan Area provided evidence of spatial agglomeration patterns within the creative industry, while Luqueño [11] proposed a methodological approach for the geocultural analysis of CCI in Hidalgo to identify patterns of functional specialization. These studies represent important advances in the analysis of individual cities; however, they often rely on different SCIAN classifications and rarely allow for systematic comparisons of specialization patterns across urban nodes with contrasting economic, cultural, and demographic profiles

It is precisely within this comparative gap that the present study is situated. The research focuses on four Mexican urban nodes—Puerto Vallarta, the Guadalajara Metropolitan Area (GMA), Tijuana, and Oaxaca—which exhibit distinct economic structures and development trajectories. By applying a common methodological framework, the study seeks to characterize and compare the spatial morphology of cultural and creative industries across these territories.

Unlike previous studies conducted in Mexico, which have generally concentrated on individual cities or the identification of spatial patterns within specific metropolitan areas, this research proposes a systematic comparison of four urban nodes with contrasting economic, cultural, and functional characteristics. The study integrates a standardized classification derived from Mexico's Culture Satellite Account (CSCM), simultaneously incorporates establishment, employment, and value-added indicators, and employs a comparative strategy that enables the assessment of territorial specialization in cultural and creative industries under a common analytical framework. This approach helps reduce the methodological comparability limitations identified in the national literature and provides empirical evidence for understanding the diversity of creative development trajectories across Mexican urban contexts justification.

Cultural and creative industries (CCI) have gained increasing prominence within contemporary development agendas due to their capacity to generate employment, foster innovation, diversify productive structures, and create knowledge-based territorial competitive advantages. For micro, small, and medium-sized enterprises (MSMEs) operating within the cultural sector, the existence of agglomeration economies—characterized by the concentration of complementary firms, specialized suppliers, skilled labor markets, and knowledge spillovers within specific locations—constitutes a structural determinant of competitiveness. These agglomeration effects contribute to reducing transaction costs, facilitating access to clients and collaborators, and enabling the absorption of tacit knowledge. Consequently, identifying which cities specialize in particular creative activities has direct policy implications for business development, location decisions, and the design of targeted support instruments.

The four urban nodes examined in this study were selected using a maximum variation sampling strategy [12] to capture contrasting economic structures, urban functions, and development trajectories. The Guadalajara Metropolitan Area (GMA), as the second-largest metropolitan center in Mexico, is characterized by a strong technology- and knowledge-based economy. Puerto Vallarta represents an international tourism hub where cultural activities are closely integrated with the service economy and recreational offerings. Oaxaca constitutes a nationally and internationally recognized center of cultural heritage, distinguished by its cultural diversity and strong presence of traditional artisanal activities. Tijuana, meanwhile, is shaped by its border location, transnational dynamics, and

cultural exchange processes associated with the binational economy. Comparing these four urban contexts makes it possible to identify different forms of CCI integration within local economies and to assess whether creative specialization patterns reflect the broader economic profile of each city.

From an academic perspective, the primary contribution of this research lies in generating comparative evidence on the territorial specialization of cultural and creative industries in Mexico through the use of multidimensional indicators of productive structure, employment, and value creation. In addition, the study contributes methodologically by applying a standardized classification based on 120 SCIAN activity classes derived from Mexico's Culture Satellite Account (CSCM), thereby enhancing comparability across urban contexts. From an applied perspective, the findings provide valuable insights for the design of differentiated public policies aimed at strengthening local creative ecosystems, fostering territorial competitive advantages, and supporting micro, small, and medium-sized enterprises operating within the cultural and creative sectors.

1.2 Objective

To analyze the territorial specialization patterns of cultural and creative industries (CCI) across four Mexican urban nodes—the Guadalajara Metropolitan Area (GMA), Puerto Vallarta, Oaxaca, and Tijuana—using indicators of productive structure, employment, and value added in order to identify economic differences associated with their urban and productive profiles.

1.2.1 Specific Objectives

1. To characterize the sectoral structure of cultural and creative industries in each urban node based on the distribution of economic establishments.
2. To identify the cultural and creative sectors exhibiting the highest levels of territorial specialization through location quotients calculated from establishment data.
3. To assess differences in cultural specialization using economic variables derived from the 2024 Economic Census, particularly employment and value added.
4. To statistically compare the composition of cultural and creative industries across the four urban nodes using chi-square tests of independence.
5. To determine whether cultural specialization profiles reflect the dominant economic characteristics of each city.
6. To evaluate the usefulness of a standardized classification based on 120 SCIAN activity classes derived from Mexico's Culture Satellite Account (CSCM) for conducting comparative analyses of territorial specialization in cultural and creative industries.

1.3 Research Question and Hypothesis

1.3.1 Research Question

How are cultural and creative industries territorially specialized across major Mexican urban nodes, and to what extent does this specialization reflect the dominant economic characteristics of each territory?

1.3.2 Research Hypothesis (H1)

Cultural and creative industries exhibit differentiated patterns of territorial specialization across the urban nodes analyzed, expressed through significant differences in sectoral composition, employment concentration, and value-added generation. Consequently, the cultural specialization observed in the Guadalajara Metropolitan Area (GMA), Puerto Vallarta, Oaxaca, and Tijuana is expected to reflect distinct urban economic configurations that are statistically distinguishable from one another.

1.3.3 Null Hypothesis (H_0)

No significant differences exist in the territorial specialization patterns of cultural and creative industries among the urban nodes analyzed. Therefore, sectoral composition, employment concentration, and value-added generation are independent of the territorial context and do not reflect distinct urban economic configurations.

1.4 Theoretical Framework

Cultural and creative industries (CCIs) have gained increasing relevance within contemporary productive systems due to their capacity to generate economic value, innovation, and territorial development. Their distinctive characteristic lies in the fact that the goods and services they produce simultaneously incorporate economic and symbolic dimensions, as they possess market value while also conveying cultural, identity-related, and expressive meanings linked to the social contexts in which they are created and consumed [13]. This dual nature differentiates CCIs from other productive sectors, as value creation depends not only on economic processes but also on the ability to mobilize knowledge, creativity, and cultural resources.

From an organizational perspective, CCIs are often structured through networks of small and medium-sized economic units interconnected by processes of creation, production, commercialization, and distribution. These activities operate under conditions of high uncertainty resulting from the difficulty of anticipating consumer preferences and the acceptance of new cultural products. As noted by Caves and other scholars specializing in the creative economy, continuous innovation and experimentation are inherent characteristics of the sector, increasing the importance of cooperation mechanisms and collective learning [14].

On the other hand, the uncertainty that characterizes creative markets encourages the spatial concentration of firms, specialized workers, and institutions associated with cultural production. Geographic proximity facilitates the exchange of information, the development of trust-based relationships, and the creation of shared conventions that reduce the costs associated with innovation and experimentation. This phenomenon constitutes one of the foundations of creative cluster theory, which argues that territorial agglomeration promotes productive specialization and strengthens the competitiveness of creative activities [14].

In this context, cities play a strategic role as spaces for economic, social, and cultural articulation. The concentration of creative talent, cultural infrastructure, educational institutions, research centers, and specialized services creates favorable conditions for the production and circulation of cultural goods. Flew [15] identifies two major approaches that have dominated the interpretation of the relationship between creativity and territory: creative cluster theory and creative city theory [16]. Both approaches recognize the importance of cities as environments conducive to innovation and creativity, although they differ in the mechanisms through which these territorial advantages are generated.

However, several critics have pointed out that these approaches tend to prioritize economic and market factors while placing less emphasis on the social, institutional, and historical dimensions that influence the configuration of creative territories. O'Connor [17] argues that much of the contemporary discourse on the creative economy has subordinated cultural value to the logic of economic profitability, thereby limiting the understanding of the role those cultural policies play in building territorial capacities. From this perspective, the spatial analysis of CCIs requires consideration not only of the location of economic activities but also of the institutional and social conditions that enable their consolidation and long-term sustainability [18].

As a result, recent research has expanded this debate through the concept of creative ecosystems, which emphasizes the interaction among firms, universities, government agencies, cultural organizations, and technological infrastructure as fundamental elements for the development of creative activities. UNESCO [19] argues that the sustainability of cultural industries depends on the ability of these actors to generate collaborative networks, share knowledge, and promote innovation processes that strengthen the resilience of territories in the face of economic and technological changes [18].

At the same time, digitalization has significantly transformed the ways in which cultural goods and services are created, produced, and commercialized. The expansion of digital platforms, audiovisual content, software-based creative services, and emerging technologies has reshaped the economic structure of CCIs. According to UNCTAD [1], the growth of knowledge-intensive creative services reflects a transition toward productive models in which technological innovation and intellectual capital become key determinants of competitiveness. As a result, the integration of territories into the creative economy increasingly depends on their ability to combine cultural resources with technological infrastructure and innovation capabilities.

From a regional development perspective, these transformations have strengthened interest in studying processes of territorial specialization. This concept refers to the extent to which certain economic activities achieve a higher relative participation within a territory compared to a reference spatial unit. Specialization emerges as the result of historical processes of accumulation of productive, institutional, and cultural capacities that enable regions to develop differentiated competitive advantages. The OECD [20] notes that these advantages constitute an essential component for generating sustainable economic growth and local development.

In cultural and creative industries, territorial specialization acquires distinctive characteristics due to the close relationship between economic activity, cultural identity, and symbolic capital. UNCTAD [1] highlights that creative activities tend to concentrate in territories that successfully integrate specialized talent, cultural resources, infrastructure, and access to markets. Consequently, the differences observed among cities are not solely the result of the spatial distribution of firms, but also of territorial capacities to transform cultural resources into employment, innovation, and value added.

Under this logic, specialization patterns reflect differentiated trajectories of creative development. While some territories concentrate knowledge-intensive activities such as design, software development, or audiovisual production, others exhibit a stronger orientation toward activities linked to cultural heritage, performing arts, or artisanal production. These configurations make it possible to identify distinct functional profiles within the creative economy and represent a manifestation of the competitive advantages historically developed by each territory ([19] & [1]).

In the Mexican context, the Cultural Satellite Account of Mexico (CSCM) [21] provides the main institutional framework for the identification and measurement of cultural activities. The CSCM defines the cultural sector as the set of activities that transform ideas and creative processes into goods and services characterized by their symbolic content through processes of creation, production, transmission, preservation, training, and consumption. This classification constitutes the methodological foundation used in the present study and makes it possible to link the theoretical approaches of the creative economy with the empirical measurement of cultural and creative industries in the territories analyzed.

To empirically examine processes of territorial specialization, the regional economics literature has widely employed Location Quotients (LQ). This indicator compares the relative share of an economic activity within a territory to that of a broader reference unit,

making it possible to identify sectors with levels of concentration that are higher or lower than expected. Due to their ability to detect territorial comparative advantages and patterns of productive specialization, LQs have become one of the most widely used tools in studies of economic geography, regional development, and the creative economy [20].

When applied to cultural and creative industries, the location quotient makes it possible to identify those activities that exhibit a significantly greater presence in specific territories, providing evidence of processes of economic and functional differentiation. Consequently, its use is appropriate for assessing whether the urban nodes analyzed display specialized profiles associated with particular economic, cultural, and institutional characteristics, thereby contributing to a better understanding of the different ways in which Mexican cities participate in the contemporary creative economy.

As a result; this study contributes to the literature on cultural and creative industries (CCI) in three main ways. First, it provides a systematic comparative analysis of territorial specialization across four Mexican urban nodes characterized by contrasting economic and cultural profiles, addressing the limited availability of comparative evidence in developing countries. Second, it integrates establishment, employment, and value-added indicators within a unified analytical framework based on Mexico's Culture Satellite Account (CSCM), allowing a multidimensional assessment of creative specialization. Third, the study extends current discussions on territorial creative economies by demonstrating that cultural specialization follows differentiated urban development trajectories that reflect broader local economic structures rather than a single pattern of creative agglomeration. These findings contribute to the international debate on creative ecosystems, regional competitiveness, and place-based development policies.

2 Methodology

2.1 Área de Study Area

This study examines four urban nodes in Mexico: (1) the Guadalajara Metropolitan Area (GMA), defined as the agglomeration of ten municipalities—Guadalajara, Zapopan, San Pedro Tlaquepaque, Tonalá, Tlajomulco de Zúñiga, El Salto, Ixtlahuacán de los Membrillos, Juanacatlán, Zapotlanejo, and Acatlán de Juárez—corresponding to INEGI municipality codes 039, 120, 098, 101, 097, 070, 044, 051, 124, and 002 within the state of Jalisco (state code 14); (2) Puerto Vallarta, municipality 067 of Jalisco; (3) Tijuana, municipality 004 of Baja California (state code 02); and (4) Oaxaca de Juárez, municipality 067 of the state of Oaxaca (state code 20). The selection of these urban nodes followed a maximum variation comparative design aimed at capturing diverse economic, cultural, and territorial configurations of cultural and creative industries (CCI) within Mexico.

Collectively, the four urban nodes comprise 28,368 CCI establishments distributed across the 120 SCIAN activity classes included in the analysis. The GMA represents the largest concentration of establishments, accounting for 19,918 units (70.2% of the total), followed by Tijuana with 4,250 establishments (14.9%), Oaxaca with 2,944 (10.3%), and Puerto Vallarta with 1,256 (4.4%).

Table 1 presents the distribution of establishments by macro-group. Artisanal activities constitute the majority of establishments in both the GMA and Puerto Vallarta, highlighting the importance of traditional cultural production within their local economies. In contrast, characteristic cultural activities account for a proportionally larger share of establishments in Oaxaca, reflecting the city's strong orientation toward heritage, artistic expression, and cultural services. Tijuana exhibits a nearly balanced distribution between artisanal and characteristic activities, suggesting a more diversified creative structure that combines cultural production, manufacturing activities, and contemporary creative services.

2.2 Data Sources

The analysis draws upon three complementary data sources. First, establishment-level data were obtained from the National Statistical Directory of Economic Units (DENUE) for the states of Jalisco, Oaxaca, and Baja California through INEGI’s bulk download system [22]. Second, economic variables—specifically employment and value added—were extracted from the 2024 Economic Census [23], using the open-access state-level datasets corresponding to the same three states. Third, the spatial delimitation of the study areas was based on Urban Basic Geostatistical Areas (AGEBs) from INEGI’s 2025 National Geostatistical Framework [24].

Georeferenced establishments were assigned to their corresponding AGEBS through spatial intersection procedures, enabling the integration of economic and geographic information within a common analytical framework. This process facilitated the construction of territorial maps and the identification of spatial concentration patterns across the four urban nodes analyzed. The resulting database provided the basis for evaluating territorial specialization through establishment, employment, and value-added indicators, while also supporting the spatial visualization of cultural and creative activities within each study area.

2.3 Classification of Cultural and Creative Industries

This study adopts the classification framework established by Mexico’s System of National Accounts through the methodological guidelines of the Culture Satellite Account of Mexico (CSCM) [21]. All analyses are based on the SCIAN activity codes identified within the CSCM classification system, which distinguishes three broad groups of economic activities: characteristic cultural activities, related activities, and activities associated with artisanal production.

Characteristic cultural activities comprise those directly linked to the creation, expression, interpretation, preservation, dissemination, and transmission of cultural content. Because their primary purpose is cultural in nature, they constitute the analytical core of the cultural sector and account for the largest share of value recognized within the satellite account framework

Table 1. Classification Framework of Cultural and Creative Industries Based on Activity Type, SCIAN Codes, and Cultural Dimensions.

CSCM Activity Type	SCIAN Codes	Cultural Dimension
Characteristic Activities	315224, 323111, 323119, 323120, 325992, 333412, 334220, 334310, 334610, 339911, 339930, 339991	Cultural Manufacturing
Characteristic Activities	511111, 511112, 511121, 511122, 511131, 511132, 511141, 511191, 511192	Editing and Publishing
Characteristic Activities	512110, 512111, 512112, 512113, 512120, 512130, 512190, 512230, 512240, 512250, 512290	Audiovisual and Software
Characteristic Activities	515110, 515120, 515210	Radio and Television
Characteristic Activities	519110, 519121, 519130, 519190	Internet and Digital Media
Characteristic Activities	541310, 541320, 541340, 541370, 541410, 541420, 541430, 541490, 541510, 541810, 541840, 541850, 541920, 541930	Design and Advertising

CSCM Activity Type	SCIAN Codes	Cultural Dimension
Characteristic Activities	611611, 611612, 611631	Arts Education
Characteristic Activities	711211, 711212	Sports
Characteristic Activities	711111, 711112, 711131, 711191, 711311, 711312, 711320, 711410, 711510	Performing Arts
Characteristic Activities	712111, 712120, 712131, 712190	Heritage and Museums
Characteristic Activities	812910	Photography and Visual Services
Characteristic Activities	813230	Cultural Organizations
Activities Associated with Artisanal Production	311340, 311350, 311423, 311513, 311613, 311812, 312142	Food Crafts
Activities Associated with Artisanal Production	313111, 314110, 314120, 314991, 314992, 314999, 315192, 315222, 315224, 315229, 315991, 315999	Textiles and Apparel
Activities Associated with Artisanal Production	316211, 316219, 316991, 316999	Leather and Footwear
Activities Associated with Artisanal Production	321910, 321991, 321992, 322299	Wood and Paper
Activities Associated with Artisanal Production	327111, 327215, 327219, 327420, 327991	Ceramics, Glass and Stone
Activities Associated with Artisanal Production	325999, 332110, 332212, 332510, 332610, 332999, 335120, 337120, 339912, 339913, 339914, 339930, 339991, 339994, 339999	Metal, Jewelry and Manufacturing

Note. Authors' own elaboration based on DENU (2026), the 2024 Economic Census, and INEGI's National Geostatistical Framework (2025).

Related activities include goods and services that are not exclusively cultural but contribute to the operation, distribution, or consumption of cultural products. These activities encompass selected commercial services, internet access services, venue rental, and other complementary activities. Although their inclusion broadens the economic measurement of culture, their hybrid nature complicates the precise identification of the proportion attributable exclusively to cultural production. Given the objectives of this research, related activities were excluded in order to maximize the cultural specificity of the establishments analyzed and to reduce potential biases arising from economic activities whose cultural component cannot be clearly isolated using available statistical records.

Activities associated with artisanal production occupy a distinctive position within the CSCM framework due to their close connection with territorial identity, traditional knowledge, and the intergenerational transmission of cultural practices. Although many of these activities are classified within broader manufacturing sectors of the SCIAN system, the CSCM identifies specific artisanal production components that enable their incorporation into the economic analysis of culture. Their inclusion is particularly relevant in the Mexican context, where artisanal production represents both a cultural expression and an important source of local economic activity.

The final study universe comprised 120 SCIAN activity classes, including 73 characteristic cultural activities and 47 activities associated with artisanal production. These activities were subsequently organized into macro-groups and classified into specific cultural dimensions, as presented in (Table 1), in order to facilitate the analysis of territorial specialization patterns across the urban nodes examined. This classification framework provides a standardized basis for comparing productive structures, employment concentration, and value-added generation within Mexico's cultural and creative industries.

2.4 Analytical Method

The analysis of territorial specialization in cultural and creative industries (CCI) was conducted using a quantitative approach with a descriptive-comparative scope and a cross-sectional, non-experimental research design. The study relied on secondary data obtained from administrative records and census sources. Descriptive statistical techniques were employed to characterize the distribution of cultural and creative activities across the urban nodes analyzed, while regional analysis methods were used to identify patterns of economic specialization. Subsequently, inferential statistical procedures were applied to evaluate the existence of significant differences in the sectoral composition of cultural and creative industries across the territories under study. Accordingly, the analytical strategy combined descriptive statistics, location quotients (LQ), and inferential testing, all implemented using RStudio¹ software [25].

Territorial specialization was assessed through three complementary indicators: (i) the number of economic establishments, used to characterize the business structure of cultural and creative activities; (ii) employment, used as an indicator of labor specialization; and (iii) gross census value added, employed as a measure of economic value creation. These indicators were calculated for each of the 120 SCIAN activity classes included in the classification framework of Mexico's Culture Satellite Account (CSCM) and subsequently aggregated by cultural dimension and urban node.

The territorial units of analysis consisted of the Guadalajara Metropolitan Area (GMA), Puerto Vallarta, Oaxaca de Juárez, and Tijuana. These urban nodes were selected through a maximum variation sampling strategy in order to represent contrasting economic, cultural, and territorial profiles. This comparative design enabled the identification of similarities and differences in the specialization patterns of cultural and creative industries across diverse urban contexts within Mexico.

Descriptive statistics were used to characterize the distribution of cultural and creative industries (CCI) across urban nodes, macro-groups, and cultural dimensions through absolute and relative frequency tables. Territorial specialization was assessed using location quotients (LQ), which measure the degree of concentration of a given activity relative to a reference group. The indicator was calculated independently for three variables: establishments, which capture the relative concentration of cultural economic units within each urban node; employment, which measures the degree of labor specialization in cultural activities; and value added, which evaluates economic specialization based on the generation of economic value.

Location quotients were computed by comparing the share of a specific cultural activity within a given urban node to its corresponding share in the reference group composed of the four urban nodes analyzed. The general expression is as follows:

$$LQ = \left(\frac{e_{ij}}{e_{ij}} \right) \left(\frac{E_i}{E} \right) \quad (1)$$

¹All statistical and geospatial processing was conducted in the R environment, primarily using the *sf*, *dplyr*, *data.table*, *tidyverse*, *ggplot2*, *tmap*, *spdep*, *spatstat*, and *stars* packages. The complete source code, processing scripts, methodological notes, and intermediate datasets are publicly available in the project's GitHub repository: https://github.com/camilopg/territorial_especializacion_ICC_Mx.git.

where (e_i) represents the indicator (establishments, employment, or value added) for activity (i) in urban node; (e_j) denotes the total value of the indicator in node (j); (E_i) represents the total value of the indicator for activity (i) across all urban nodes; and (E) corresponds to the overall value of the indicator across the reference group.

LQ values greater than 1 indicate that a given activity has a higher relative share within the analyzed urban node than in the reference group, suggesting the presence of territorial specialization. Values close to 1 reflect a participation level proportional to that of the reference structure, whereas values below 1 indicate a lower relative concentration of the economic activity in the territory under study (see Table 2).

Table 2. Interpretation of Location Quotient (LQ) Values.

LQ Value	Interpretation
$LQ < 1.0$	Below-average concentration relative to the reference group
$LQ = 1.0$	Concentration equivalent to the reference group
$LQ > 1.0$	Territorial specialization
$LQ > 1.5$	High territorial specialization
$LQ > 2.0$	Very high territorial specialization

Note. Authors' own elaboration.

* LQ values above 1 indicate that the relative participation of an activity in a given urban node exceeds its share in the reference group. Higher values reflect increasing levels of territorial concentration and specialization.

Statistical comparisons among the urban nodes were conducted using the chi-square test of independence applied to contingency tables organized by activity macro-group. The null hypothesis (H_0) assumed independence between the distribution of cultural and creative activities and the urban node under analysis, using a significance level of $\alpha = 0.05$. Effect size was assessed using Cramér's V, where values close to 0 indicate the absence of association and values approaching 1 indicate a perfect association between the variables. This statistic provides a complementary measure of the strength of the relationship identified by the chi-square test, allowing for a more robust interpretation of the observed differences across urban nodes.

$$\chi^2 = \frac{\sum_{i=1}^r \sum_{j=1}^c (O_{ij} - E_{ij})^2}{E_{ij}} \quad (2)$$

$$V = \sqrt{\left[\frac{\chi^2}{[n * (r-1, c-1)]} \right]}$$

2.5 Hypothesis Formulation and Testing

Based on the theoretical foundations of territorial specialization, creative economies, and the spatial concentration of cultural and creative industries (CCI), the following research hypotheses were established:

1. **H_0 (Null Hypothesis):** There are no significant differences in the distribution of cultural and creative activities across the urban nodes analyzed; therefore, the observed sectoral composition is independent of the territory under consideration.

2. **H₁ (Research Hypothesis):** Cultural and creative industries exhibit differentiated patterns of territorial specialization across the urban nodes analyzed, reflected in significant differences in sectoral composition and distinct profiles of economic concentration as measured by location quotients calculated for establishments, employment, and value added.

The hypotheses were tested using the chi-square test of independence to evaluate the association between the distribution of cultural and creative activities and the urban nodes under study. This analysis was complemented by the calculation of location quotients (LQ), which were used to identify both the intensity and direction of territorial specialization across the economic dimensions considered. The combined use of inferential statistics and regional specialization indicators enabled a comprehensive assessment of whether observed differences in creative-sector structures were statistically significant and territorially meaningful.

3 **Results**

3.1 **General Structure of Cultural and Creative Industries**

Collectively, the four urban nodes account for 28,368 cultural and creative industry (CCI) establishments distributed across the 120 SCIAN activity classes included in the analysis. Due to its metropolitan scale and concentration of municipalities, the Guadalajara Metropolitan Area (GMA) represents the largest concentration of establishments, with 19,918 units (70.2% of the total), followed by Tijuana with 4,250 establishments (14.9%), Oaxaca with 2,944 (10.3%), and Puerto Vallarta with 1,256 (4.4%).

Table 3 presents the distribution of establishments by activity macro-group. Artisanal activities constitute the majority of establishments in both the GMA and Puerto Vallarta, highlighting the importance of traditional cultural production within their local economies. In contrast, characteristic cultural activities account for a proportionally larger share of establishments in Oaxaca, reflecting the city's strong orientation toward heritage-based, artistic, and cultural service activities. Tijuana exhibits a nearly balanced distribution between the two macro-groups, suggesting a more diversified creative structure that combines artisanal production, cultural manufacturing, and contemporary creative services.

These differences provide initial evidence that the internal composition of cultural and creative industries varies considerably across the urban nodes analyzed, reflecting distinct territorial development trajectories and economic specializations. While the GMA and Puerto Vallarta maintain a stronger presence of artisanal activities, Oaxaca exhibits a greater concentration of characteristic cultural activities, whereas Tijuana displays a more balanced and diversified creative economy profile.

A particularly interesting pattern is observed in Oaxaca and the Guadalajara Metropolitan Area (GMA). Oaxaca exhibits a higher concentration of establishments classified as characteristic cultural activities, despite its traditional recognition as one of Mexico's leading artisanal centers. Conversely, the GMA shows a predominance of establishments associated with artisanal activities, even though its metropolitan and knowledge-intensive economic profile would suggest a greater relative concentration of characteristic cultural activities. This finding highlights the complexity of creative-sector structures and suggests that territorial specialization does not always align with conventional perceptions of local cultural economies.

Table 3. Total Number of Cultural and Creative Industry Establishments by Urban Node.

Urban Node	CCI Macro-Group	Establishments	Percentage (%)
GMA	Artisanal Activities	12,192	61.21

Urban Node	CCI Macro-Group	Establishments	Percentage (%)
GMA	Characteristic Cultural Activities	7,726	38.79
Oaxaca	Artisanal Activities	1,390	47.21
Oaxaca	Characteristic Cultural Activities	1,554	52.79
Puerto Vallarta	Artisanal Activities	730	58.12
Puerto Vallarta	Characteristic Cultural Activities	526	41.88
Tijuana	Artisanal Activities	2,084	49.04
Tijuana	Characteristic Cultural Activities	2,166	50.96

Note. Authors' own elaboration.

3.2 Territorial Specialization of Cultural Activities

The location quotients (LQ) presented in Table 4 reveal an initial pattern of structural differentiation among the urban nodes. The Guadalajara Metropolitan Area (GMA) records an LQ of 1.05 for artisanal activities, indicating a concentration above the average of the four-node reference group. In contrast, its LQ for characteristic cultural activities falls below unity (0.91), suggesting a lower relative concentration of these activities compared with the overall reference structure.

Oaxaca and Tijuana display the opposite pattern, with higher LQ values for characteristic cultural activities (1.25 and 1.20, respectively) and lower values for artisanal activities. This result indicates that both territories exhibit a stronger relative specialization in activities directly associated with cultural creation, expression, dissemination, and preservation. Although the underlying economic structures of these cities differ considerably, the findings suggest that characteristic cultural activities occupy a more prominent position within their respective creative economies than in the reference group as a whole.

Puerto Vallarta exhibits the most balanced profile among the urban nodes analyzed, with LQ values for both macro-groups remaining close to unity. This pattern indicates a distribution of cultural and creative activities that closely mirrors the structure of the reference group, suggesting the coexistence of artisanal and characteristic cultural activities without a marked specialization in either category.

Overall, these findings provide preliminary evidence that the territorial specialization of cultural and creative industries varies across urban contexts. While the GMA exhibits a relative concentration in artisanal activities, Oaxaca and Tijuana demonstrate stronger specialization in characteristic cultural activities, whereas Puerto Vallarta maintains a more balanced creative structure. These differences point to the existence of distinct territorial configurations within Mexico's creative economy and provide a foundation for the more detailed analysis of cultural dimensions presented in the following sections.

Table 4. Location Quotients (LQ) by Urban Node and CCI Macro-Group.

Urban Node	CCI Macro-Group	Establishments	LQ
GMA	Artisanal Activities	12,192	1.059

Urban Node	CCI Macro-Group	Establishments	LQ
GMA	Characteristic Cultural Activities	7,726	0.919
Oaxaca	Artisanal Activities	1,390	0.817
Oaxaca	Characteristic Cultural Activities	1,554	1.251
Puerto Vallarta	Artisanal Activities	730	1.006
Puerto Vallarta	Characteristic Cultural Activities	526	0.992
Tijuana	Artisanal Activities	2,084	0.848
Tijuana	Characteristic Cultural Activities	2,166	.208

Note. Authors' own elaboration.

3.3 Employment Specialization

The employment-based location quotients (LQ) presented in Table 5 provide a deeper understanding of the structural differences among the urban nodes. The Guadalajara Metropolitan Area (GMA) exhibits a markedly higher LQ in artisanal employment (1.24) compared with characteristic cultural activities (0.74), suggesting that although the GMA concentrates a significant number of creative service firms, its employment base within the cultural and creative industries (CCI) remains proportionally more oriented toward artisanal production chains. Oaxaca records the highest level of employment specialization in characteristic cultural activities, (LQ=1.40), indicating a strong concentration of cultural employment associated with activities such as heritage, artistic production, and cultural services. Similarly, Tijuana also exhibits an LQ greater than 1 for characteristic cultural employment, (LQ=1.37), reflecting the relative importance of these activities within its creative economy and labor structure. Puerto Vallarta remains close to the reference value in both macro groups, (LQ=1.00), indicating an employment composition broadly consistent with the overall structure of the reference group. This pattern aligns with the balanced distribution of establishments previously identified, suggesting a relatively proportional relationship between business concentration and employment across cultural and creative activities.

Overall, the employment results reinforce the specialization patterns observed in the establishment-based analysis while revealing additional differences in labor concentration. Whereas the GMA demonstrates a stronger employment orientation toward artisanal activities, Oaxaca and Tijuana exhibit more pronounced specialization in characteristic cultural employment. Puerto Vallarta, by contrast, maintains a comparatively balanced employment structure, further supporting the existence of differentiated territorial configurations within Mexico’s cultural and creative economy (Table 5).

Table 5. Employment Location Quotients (LQ) by Urban Node and CCI Macro-Group.

Urban Node	CCI Macro-Group	Employment	LQ
GMA	Artisanal Activities	109,216	1.244
GMA	Characteristic Cultural Activities	63,890	0.749
Oaxaca	Artisanal Activities	1,758	0.611
Oaxaca	Characteristic Cultural Activities	3,918	1.400
Puerto Vallarta	Artisanal Activities	2,006	0.997

Urban Node	CCI Macro-Group	Employment	LQ
Puerto Vallarta	Characteristic Cultural Activities	1,960	1.003
Tijuana	Artisanal Activities	36,900	0.645
Tijuana	Characteristic Cultural Activities	75,916	1.365

Note. Authors' own elaboration.

3.4 Economic Specialization Based on Value Added

The value-added location quotients (LQ) presented in Table 6 reinforce the specialization patterns identified in the previous analyses while revealing even greater differences between the two activity macro groups. Oaxaca, Puerto Vallarta, and Tijuana exhibit specialization in characteristic cultural activities, with Oaxaca recording the highest LQ among all urban nodes (LQ = 1.56). This finding indicates a particularly strong concentration of economic value generation in activities directly associated with cultural creation, preservation, and dissemination.

Puerto Vallarta displays the most balanced distribution of value added between the two macro-groups, suggesting that both artisanal and characteristic cultural activities contribute relatively evenly to the local creative economy. This result is consistent with the city's diversified cultural profile, where cultural production and tourism-related activities coexist within a complementary economic structure.

By contrast, the Guadalajara Metropolitan Area (GMA) exhibits the largest disparity between macro-groups, with an LQ of 1.29 for artisanal activities and 0.66 for characteristic cultural activities. This pattern indicates that value generation within the GMA's cultural and creative industries is disproportionately concentrated in artisanal production activities. The result is consistent with the establishment-based specialization patterns observed previously, particularly in sectors such as leather and footwear, food crafts, and metal and jewelry manufacturing, which represent some of the most significant sources of economic value within the region's creative economy.

Overall, the value-added analysis confirms that territorial specialization extends beyond the distribution of establishments and employment, reflecting substantial differences in the economic capacity of cultural and creative activities across urban contexts. While Oaxaca, Puerto Vallarta, and Tijuana derive a larger share of economic value from characteristic cultural activities, the GMA continues to exhibit a stronger orientation toward artisanal production, highlighting the existence of distinct creative development trajectories among the urban nodes analyzed.

Table 6. Value-Added Location Quotients (LQ) by Urban Node and CCI Macrogroup.

Urban Node	CCI Macro-Group	Value Added	LQ
GMA	Artisanal Activities	36,668.342	1.295
GMA	Characteristic Cultural Activities	16,766.528	0.667
Oaxaca	Artisanal Activities	161.580	0.496
Oaxaca	Characteristic Cultural Activities	453.724	1.569
Puerto Vallarta	Artisanal Activities	330.796	0.821
Puerto Vallarta	Characteristic Cultural Activities	429.258	1.201

Urban Node	CCI Macro-Group	Value Added	LQ
Tijuana	Artisanal Activities	12,222.556	0.601
Tijuana	Characteristic Cultural Activities	26,161.286	1.450

Note. Authors' own elaboration.

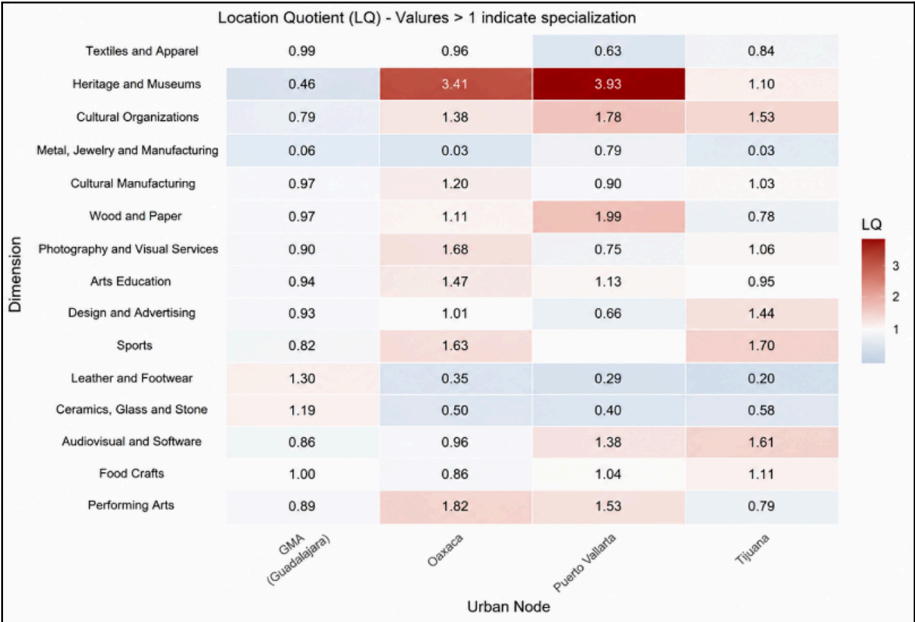
*Value added is reported in millions of Mexican pesos (MXN). Authors' own elaboration.

3.5 Internal Structure of the ICC

The disaggregation of location quotients (LQ) across the 18 cultural dimensions enables the identification of more nuanced specialization patterns than those observed at the macro-group level. The results indicate that each urban node exhibits a distinctive combination of dominant cultural and creative activities, confirming the existence of differentiated internal structures within the cultural and creative industries (CCI).

Figure 1 illustrates the distribution of LQ values by cultural dimension and urban node. Overall, Oaxaca and Puerto Vallarta exhibit the highest relative concentrations in characteristic cultural activities, whereas the Guadalajara Metropolitan Area (GMA) displays a more diversified structure, characterized by moderate specializations across both artisanal activities and knowledge-intensive creative services. Tijuana, in contrast, combines activities related to cultural manufacturing, design, and audiovisual production, reflecting a hybrid creative structure shaped by its industrial base and strategic border location.

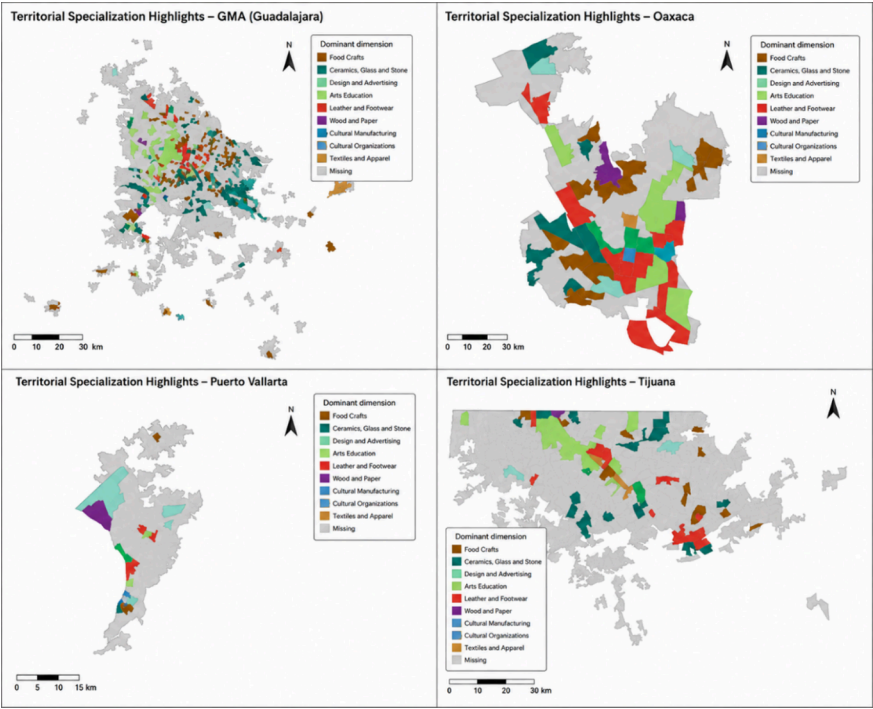
Tijuana exhibits notable specializations in Audiovisual and Software (LQ = 1.61), Sports (LQ = 1.70), Design and Advertising (LQ = 1.44), and Cultural Organizations (LQ = 1.53), forming a profile more closely associated with contemporary creative activities and cultural services linked to urban and cross-border dynamics. By contrast, the GMA records more moderate specializations, particularly in Leather and Footwear (LQ = 1.30) and Ceramics, Glass and Stone (LQ = 1.19), confirming the importance of artisanal activities within its cultural productive structure.



Note: Authors' own elaboration based on DENU 2026, Economic Census 2024, and Mexico's Culture Satellite Account (CSCM).

Figure 1. Territorial specialization by creative dimension across urban nodes (location quotient based on establishments).

As shown in Figure 2, it complements this analysis by illustrating the spatial distribution of dominant cultural dimensions within each urban node. The GMA displays a high degree of territorial fragmentation and the coexistence of multiple specializations, reflecting a complex and diversified creative structure. Oaxaca presents a more concentrated distribution clearly associated with heritage and artisanal activities, whereas Puerto Vallarta exhibits a localized concentration of cultural activities linked to specific tourism corridors. Tijuana shows an intermediate spatial pattern, where cultural manufacturing, design, and audiovisual production constitute the dominant specializations.



Note. Authors' own elaboration based on DENUE 2026, Economic Census 2024, and INEGI Geostatistical Framework 2025.

Figure 2. Spatial distribution of dominant creative specializations across the Guadalajara Metropolitan Area, Oaxaca, Puerto Vallarta, and Tijuana.

As shown in Table 7, it identifies the dimensions with the highest levels of specialization based on the number of establishments. The results indicate that Puerto Vallarta and Oaxaca exhibit the highest observed values in heritage and museums, with LQs of 3.93 and 3.41, respectively, followed by activities related to performing arts, cultural organizations, and photography. In contrast, Tijuana stands out in audiovisual and software (LQ=1.61) and sports, (LQ=1.70), while the GMA is primarily characterized by leather and footwear. (LQ=1.30); these findings suggest that business concentration responds to distinct functional profiles across territories.

Table 7. Leading Specialization Patterns Based on Establishment Location Quotients (LQ).

Urban Node	CCI Macro-Group	Cultural Dimension	LQ
Puerto Vallarta	Characteristic Cultural Activities	Heritage and Museums	3.925
Oaxaca	Characteristic Cultural Activities	Heritage and Museums	3.408
Puerto Vallarta	Artisanal Activities	Wood and Paper	1.987
Oaxaca	Characteristic Cultural Activities	Performing Arts	1.824
Puerto Vallarta	Characteristic Cultural Activities	Cultural Organizations	1.777

Urban Node	CCI Macro-Group	Cultural Dimension	LQ
Tijuana	Characteristic Cultural Activities	Sports	1.695
Oaxaca	Characteristic Cultural Activities	Photography and Visual Services	1.679
Oaxaca	Characteristic Cultural Activities	Sports	1.628
Tijuana	Characteristic Cultural Activities	Audiovisual and Software	1.612
Tijuana	Characteristic Cultural Activities	Cultural Organizations	1.533
Puerto Vallarta	Characteristic Cultural Activities	Performing Arts	1.527
Oaxaca	Characteristic Cultural Activities	Artistic Education	1.467
Tijuana	Characteristic Cultural Activities	Design and Advertising	1.442
Puerto Vallarta	Characteristic Cultural Activities	Audiovisual and Software	1.384
Oaxaca	Characteristic Cultural Activities	Cultural Organizations	1.380
GMA	Artisanal Activities	Leather and Footwear	1.302
Oaxaca	Characteristic Cultural Activities	Cultural Manufacturing	1.205

Note. Authors' own elaboration.

The information presented in Table 8 deepens the analysis by simultaneously incorporating establishments, employment, and value-added indicators for characteristic cultural activities. The results reveal that the concentration of establishments does not necessarily correspond to employment generation or economic value creation. Oaxaca records the highest levels of economic specialization in heritage and museums (LQ value, photography and visual services, (LQ=42.31), and performing arts), (LQ=32.46), demonstrating a remarkable capacity to generate value through activities intensive in symbolic and cultural capital. Likewise, Puerto Vallarta exhibits strong specialization in performing arts (LQ=25.72) and cultural organizations, (LQ=18.99), while the GMA concentrates its strongest advantages in audiovisual and software (LQ=2.20) and arts education (LQ=1.51). Tijuana, meanwhile, records its highest specialization levels in cultural manufacturing (LQ = 2.40) and heritage and museums (LQ = 2.35).

It is important to note that the extreme values observed in Oaxaca ($LQ > 40$) partially reflect the limited number of establishments operating within these activities, which increases the sensitivity of the indicator to highly productive individual units. Consequently, these findings should be interpreted as evidence of a strong concentration of economic value within a small number of highly specialized organizations, rather than as a generalized specialization across the entire cultural sector.

Table 8. Dimensions of Dominant Characteristic Activities with the Highest LQ Value Added by Node.

Urban Node	Dimension	Establishment LQ	Employment LQ	Value-Added LQ*
AMG	Audiovisual and Software	1.0616461 4	2.1430915 2	2.197403 31

AMG	Arts Education	1.1619786 1	1.4447150 8	1.514210 09
AMG	Cultural Organizations	0.9654295 8	1.2804324 8	1.461474 36
Oaxaca	Photography and Visual Services	2.2975662 7	16.758912 9	42.31149 25
Oaxaca	Heritage and Museums	3.9685235 5	27.421813 9	41.58787 90
Oaxaca	Performing Arts	2.4252088 4	10.343127 1	32.45844 34
Puerto Vallarta	Performing Arts	1.3582876 3	16.059142 4	25.72182 91
Puerto Vallarta	Cultural Organizations	1.9416764 6	7.5995805 2	18.98552 21
Puerto Vallarta	Arts Education	1.0904239 4	3.2746827 8	4.997174 58
Tijuana	Cultural Manufacturing	1.2636262 3	2.5316468 1	2.396315 11
Tijuana	Heritage and Museums	1.3745098 0	1.8350639 8	2.350928 42
Tijuana	Textiles and Apparel	0.0400342 7	1.5567523 6	1.700700 48

Note: *The extremely high LQ values observed in some dimensions should be interpreted with caution, as the indicator is sensitive to sectors characterized by a small number of establishments or a low relative share within the reference group.

Finally, Table 9 focuses on artisanal activities. The results show that the GMA concentrates the strongest relative advantages in leather and footwear (LQ value added=2.20), Food Crafts (LQ=1.98), and metal, jewelry, and manufacturing, (LQ=1.41), confirming the importance of artisanal production within its creative economy. Oaxaca stands out in Wood and Paper (LQ = 3.59), while Puerto Vallarta exhibits an even stronger specialization in the same dimension (LQ = 4.39), likely associated with tourism-oriented artisanal products. Tijuana exhibits its highest comparative specialization in textiles and apparel (LQ=1.70) and ceramics, glass, and stone, (LQ=1.63), indicating a creative industry profile that is more strongly oriented toward manufacturing-based and value-added transformation activities.

Overall, the results demonstrate that the internal structure of cultural and creative industries differs substantially across the analyzed urban nodes. While Oaxaca and Puerto Vallarta exhibit specialization patterns associated with cultural and tourism-related assets, the GMA combines artisanal activities with knowledge-intensive creative services, and Tijuana develops a hybrid profile integrating cultural manufacturing, design, and audiovisual production. These differences indicate that creative specialization in Mexico follows diverse territorial trajectories shaped by the specific economic configurations of each urban context.

Table 9. Dominant Artisanal Dimensions with the Highest Value-Added Location Quotients (LQ) by Urban Node.

Urban Node	Cultural Dimension	Establishment LQ	Employment LQ	Value-Added LQ
GMA	Leather and Footwear	1.620	2.135	2.195
GMA	Food Crafts	1.238	1.859	1.983
GMA	Metal, Jewelry and Manufacturing	1.324	1.339	1.406
Oaxaca	Wood and Paper	1.352	2.914	3.586
Oaxaca	Textiles and Apparel	1.474	1.312	0.880
Oaxaca	Food Crafts	1.043	0.498	0.545
Puerto Vallarta	Wood and Paper	2.050	3.608	4.385
Puerto Vallarta	Food Crafts	1.028	1.381	1.051
Puerto Vallarta	Metal, Jewelry and Manufacturing	0.762	0.471	0.338
Tijuana	Textiles and Apparel	1.281	1.557	1.701
Tijuana	Ceramics, Glass and Stone	0.704	1.293	1.631
Tijuana	Wood and Paper	0.911	0.944	1.422

Note. Authors' own elaboration.

Puerto Vallarta exhibits a tourism-oriented creative profile, with performing arts (value-added LQ = 25.72) and cultural organizations (value-added LQ = 18.99) emerging as its dominant dimensions. These results suggest a strong integration of cultural activities with the local tourism economy, where cultural production functions not only as a source of creative expression but also as a mechanism for attracting visitors and generating economic value.

In the Guadalajara Metropolitan Area (GMA), the leading dimensions in terms of value-added specialization are audiovisual and software (value-added LQ = 2.20) and artistic education (value-added LQ = 1.51). This pattern reflects a metropolitan economy with comparative advantages in knowledge-intensive creative services. Nevertheless, the structure of economic establishments remains predominantly concentrated in artisanal activities, particularly leather and footwear and ceramics, glass, and stone, indicating the coexistence of traditional cultural production and contemporary creative services within the same territorial economy.

Tijuana's specialization profile is primarily driven by Cultural Manufacturing (Value-Added LQ = 2.40) and Heritage and Museums (Value-Added LQ = 2.35). This combination raises interesting questions regarding the relationship between the city's industrial base and the role of transborder cultural institutions. The observed pattern is consistent with the hypothesis of a creative economy oriented toward binational markets, where cultural production and heritage-related activities may benefit from cross-border demand and the city's strategic position within the Mexico–United States border region.

3.6 Statistical Comparison Across Urban Nodes

The Chi-square test of independence conducted between urban nodes and CCI macro-groups yielded a statistically significant result, $\chi^2(3) = 204.20$, $p < 0.001$, with 3 degrees of freedom and a p-value of 5.22×10^{-44} . Consequently, the null hypothesis of independence was rejected. The distribution of CCI establishments between characteristic

cultural activities and artisanal activities differs significantly across the four urban nodes analyzed, providing statistical evidence of territorial variation in the composition of cultural and creative industries.

The corresponding Cramér's V coefficient ($V = 0.116$) indicates a statistically significant but relatively modest effect size. Although the magnitude of the association is limited, the result is consistent with the existence of distinct specialization profiles across the urban nodes. In other words, while the overall structure of cultural and creative industries shares certain common characteristics, each territory exhibits specific patterns of concentration that differentiate its creative economy from those of the other nodes.

Although the association between activity type and urban node is statistically significant, the relatively low value of Cramér's V suggests that territorial specialization cannot be explained solely by sectoral composition. Rather, the observed differences likely reflect the influence of broader economic, institutional, and sociocultural factors that are not captured by the chi-square test. Therefore, the results should be interpreted as evidence of differentiated territorial configurations within Mexico's creative economy, rather than as a direct causal relationship between urban location and cultural specialization.

4 Discussion

4.1 Territorial Models of Cultural Specialization

The findings provide empirical support for the hypothesis that cultural and creative industries (CCI) do not develop homogeneously across urban territories. Instead, the results reveal four differentiated models of territorial specialization whose configurations reflect broader economic structures, institutional environments, and cultural assets present in each urban node Rantisi et al. ([14] y Flew [15]). This evidence aligns with recent international research emphasizing that creative economies emerge through context-specific development trajectories rather than through universal patterns of agglomeration ([18] & [1]).

The Guadalajara Metropolitan Area (GMA) exhibits characteristics consistent with a knowledge-intensive creative ecosystem. Its specialization in audiovisual activities, software, education, and creative services reflects the global transition identified by UNCTAD [1], which highlights the increasing importance of digital and knowledge-based creative services within the international creative economy. While Guadalajara maintains a substantial artisanal manufacturing base, particularly in leather goods, food-related crafts, and jewelry production, its strongest value-added specializations are concentrated in sectors associated with innovation, technology, and intellectual capital. This dual structure suggests the coexistence of traditional cultural production and advanced creative services, positioning Guadalajara within a development trajectory similar to those observed in emerging creative metropolitan regions internationally.

In contrast, Oaxaca represents a heritage-based creative ecosystem where cultural identity functions as a central productive asset. UNESCO [19] emphasizes that cultural heritage constitutes a strategic resource capable of generating sustainable economic development when effectively connected to local production systems and cultural institutions. The exceptionally high location quotients observed in heritage-related activities, performing arts, and visual services suggest that Oaxaca's creative economy derives a significant share of its value from symbolic and cultural capital. Rather than competing through technological innovation alone, Oaxaca appears to generate territorial advantages through the economic valorization of cultural traditions, artistic practices, and heritage-related activities deeply embedded in local identity. This finding supports international arguments

that cultural heritage can operate as a productive resource capable of generating competitive advantages that are difficult to replicate elsewhere.

It is important to note that Oaxaca exhibits a heritage-based cultural economy, concentrating 41% of the value added generated by the Heritage and Museums dimension in only 3.9% of the establishments belonging to this category. A similar pattern is observed in Photography and Visual Services (LQ establishments = 2.2; LQ value added = 42). This finding is consistent with Throsby's [13] argument that the symbolic and economic dimensions of cultural goods are inseparable. In the case of Oaxaca, the results suggest that the symbolic capital embedded in cultural heritage is directly transformed into economic value, generating competitive advantages that are deeply rooted in local identity and are therefore difficult to replicate in other territories.

Puerto Vallarta presents a third specialization model characterized by the integration of creative activities within a tourism-oriented economy. OECD [20] identifies cultural tourism as one of the most dynamic mechanisms through which local creative ecosystems contribute to territorial development, particularly in cities where cultural consumption is strongly linked to visitor demand. The concentration of value added in performing arts and cultural organizations suggests that creative production in Puerto Vallarta is closely connected to tourism markets. Unlike Guadalajara, where specialization is associated with knowledge-intensive services, or Oaxaca, where specialization is rooted in cultural heritage, Puerto Vallarta's creative ecosystem appears to be driven by the capacity of cultural activities to complement recreational and tourism services. This configuration demonstrates how cultural and creative industries can strengthen local competitiveness through market integration rather than through industrial concentration alone.

It is worth noting that Puerto Vallarta's creative economy exhibits a distinct structure. Its specialization in performing arts and cultural organizations—supported by its position as one of Mexico's leading tourist destinations [26] and its extensive portfolio of public and private events—suggests that cultural activities are more closely integrated with the tourism market than with local productive chains. The high levels of employment and value added observed in the Performing Arts dimension (LQ = 25.72), despite a location quotient for establishments close to the average (1.36), indicate that cultural enterprises in Puerto Vallarta tend to be larger in scale than their counterparts within the reference group. This pattern suggests a business structure with a greater capacity to generate employment and economic value per establishment.

A plausible hypothesis derived from this profile is that specific competitive conditions exist for local microenterprises, including access to well-established markets and high-value consumers. However, this specialization may also imply a greater dependence on seasonal demand patterns and external capital flows, potentially limiting the consolidation of creative ecosystems rooted in local production networks and long-term territorial development.

The specialization profile identified in Tijuana reflects a transborder creative ecosystem shaped by its strategic location along the Mexico–United States border. UNCTAD [1] highlights the increasing relevance of international connectivity and cross-border cultural exchanges in contemporary creative economies. Tijuana's specialization in cultural manufacturing, audiovisual activities, and heritage-related services suggests that creative production may benefit from binational flows of talent, consumers, and cultural goods. Although the cross-sectional design of this study does not allow causal inferences, the observed pattern is consistent with international evidence showing that border cities often develop hybrid creative economies influenced by multiple cultural and economic systems

simultaneously. In this sense, Tijuana illustrates how geographical position and transnational interactions can become important determinants of creative specialization.

By contrast, Tijuana's creative economy is primarily grounded in cultural manufacturing and cultural heritage activities, reflecting both its industrial base and its strategic border position within the Mexican urban system.

The specialization observed in audiovisual production (LQ establishments = 1.61) is consistent with the city's role as an important center for independent film, music, and visual arts production. This creative model differs qualitatively from those identified in the other three urban nodes and suggests the influence of Tijuana's transborder condition, although the cross-sectional design of the study does not allow causal mechanisms to be established. The high location quotients observed in cultural manufacturing and audiovisual activities are consistent with the hypothesis of a creative economy oriented toward binational markets, where cultural production benefits from cross-border flows of talent, consumers, and creative goods.

Taken together, these findings contribute to the growing international literature on creative ecosystems by demonstrating that territorial specialization emerges through multiple pathways. The results challenge approaches that interpret creative development primarily through firm concentration or cluster formation. Instead, the evidence supports ecosystem perspectives proposed by ([19] & [20]).

according to which creative competitiveness depends on the interaction between cultural assets, institutional capacity, innovation systems, and market structures. The coexistence of metropolitan, heritage-based, tourism-oriented, and transborder specialization profiles suggests that successful creative development strategies must be adapted to the specific territorial conditions of each urban context rather than relying on standardized policy frameworks.

Furthermore, the study contributes to the comparative literature on creative economies in developing countries. UNCTAD [1] notes that empirical evidence regarding territorial specialization remains limited outside advanced economies due to methodological fragmentation and data constraints. By applying a standardized classification framework across four distinct Mexican urban nodes and integrating establishments, employment, and value-added indicators, this research provides comparative evidence that strengthens understanding of how creative economies evolve in diverse territorial settings. The findings therefore extend international discussions on place-based development, creative competitiveness, and regional innovation by highlighting the heterogeneous nature of creative specialization within a single national context.

4.2 Characterization of Cultural Specialization

The territorial specialization patterns revealed by the establishment-, employment-, and value-added-based location quotients (LQ) also demonstrate that the spatial concentration of activities does not necessarily translate into equivalent levels of employment generation or economic productivity ([3] & [15]).

Establishment LQ. This indicator identifies activities whose presence exceeds the expected level within each urban node. The Guadalajara Metropolitan Area (GMA) exhibits the most diversified structure, characterized by simultaneous specializations in cultural manufacturing, design and advertising, artistic education, and several artisanal dimensions. This pattern suggests the existence of a broad and heterogeneous business base capable of supporting multiple segments of the creative economy. In contrast, Oaxaca and Puerto Vallarta display more concentrated structures centered on heritage-related activities, artisanal production, and cultural organizations. Tijuana, meanwhile, combines cultural

manufacturing, design activities, and sectors associated with its strategic border location, reflecting a distinctive configuration within Mexico's creative economy.

Employment LQ. The employment analysis reveals that activities with a high concentration of establishments do not necessarily exhibit the same intensity in employment generation. Conversely, certain dimensions with a relatively small number of firms account for a substantial share of total employment. In the GMA, the highest employment specialization levels are observed in audiovisual and software activities, food crafts, and dimensions that were already prominent in the establishment analysis, including leather and footwear, design and advertising, and artistic education. These findings suggest that some activities are characterized by highly fragmented structures composed primarily of microenterprises, whereas others concentrate employment within a relatively small number of organizations. Puerto Vallarta presents a particularly notable case, as several cultural activities generate employment levels far exceeding those suggested by their concentration of establishments, especially **Performing Arts** (LQ = 16.00) and **Artistic**

Education (LQ = 3.27). Oaxaca largely maintains the same leading dimensions across both establishment and employment indicators, while in Tijuana artisanal activities emerge more prominently when employment specialization is considered.

Value-Added LQ. The value-added analysis demonstrates that the activities with the greatest capacity to generate economic value are not necessarily those that concentrate the largest number of establishments or employees. This pattern is particularly evident in Oaxaca, where several cultural dimensions exhibit exceptionally high value-added LQ values relative to the other urban nodes. These findings suggest that part of the territory's competitive advantage derives not only from the number of firms operating within cultural sectors, but also from their ability to generate economic value from localized cultural resources, symbolic assets, and heritage-based activities. Consequently, territorial specialization appears to be associated not only with the concentration of economic actors but also with the capacity to transform cultural assets into value-generating activities within specific local contexts.

4.3 Implications for Public Policy

The four specialization profiles identified in this study suggest distinct competitive dynamics for micro, small, and medium-sized enterprises (MSMEs) operating within the cultural and creative industries (CCI). As a result, policy interventions aimed at strengthening local creative ecosystems should be tailored to the specific territorial characteristics and development trajectories of each urban node. In the Guadalajara Metropolitan Area (GMA), the findings provide a basis for further investigation into whether its dual structure—combining industrial artisanal production with knowledge-intensive creative services—can be strengthened through differentiated business support instruments. Such policies could simultaneously promote innovation within creative service sectors while enhancing the competitiveness and modernization of traditional artisanal industries.

5 Conclusions

This study analyzed the territorial specialization of cultural and creative industries (CCI) across four Mexican urban nodes—Guadalajara Metropolitan Area, Oaxaca, Puerto Vallarta, and Tijuana—through a comparative framework based on establishments, employment, and value-added indicators. The results confirmed the existence of statistically significant differences in the composition and specialization of creative activities among the analyzed territories, supporting the central research hypothesis. The combination of location quotients and inferential analysis demonstrated that creative specialization is not uniformly distributed across urban systems, but rather reflects distinct

territorial development trajectories associated with local economic structures and cultural assets.

The findings revealed four differentiated models of creative specialization. Guadalajara exhibits a dual profile combining artisanal manufacturing with knowledge-intensive creative services; Oaxaca is characterized by a heritage-based cultural economy where symbolic capital is transformed into economic value; Puerto Vallarta presents a tourism-oriented creative ecosystem strongly linked to cultural consumption and visitor markets; and Tijuana reflects a transborder creative economy shaped by industrial production and binational cultural exchanges. These results indicate that cultural and creative industries evolve through multiple pathways rather than following a single pattern of agglomeration or creative clustering.

From a theoretical perspective, the study contributes to the growing literature on creative ecosystems by providing empirical evidence from a developing-country context. The results support ecosystem-based approaches proposed by, ([19], [20] & [1]) demonstrating that territorial competitiveness in creative industries depends on the interaction between cultural resources, institutional capacities, market access, and innovation dynamics. Furthermore, the study highlights the analytical value of integrating establishments, employment, and value-added indicators, as each dimension captures different aspects of specialization that would remain partially hidden if only one measure were considered.

From a policy perspective, the findings suggest that creative development strategies should be tailored to the specific characteristics of each territory. The coexistence of metropolitan, heritage-based, tourism-oriented, and transborder specialization profiles indicates that uniform policy approaches are unlikely to generate similar outcomes across different urban contexts. Instead, place-based policies capable of leveraging local cultural assets, productive structures, and institutional capacities may offer greater potential for strengthening creative ecosystems and enhancing territorial competitiveness.

The study presents several limitations. First, DENU and Economic Census data only include formally registered establishments, potentially underestimating cultural activities characterized by high levels of informality, particularly within artisanal production and independent artistic activities. Second, the cross-sectional design limits the possibility of identifying causal mechanisms explaining the emergence of each specialization profile. Third, the location quotients were calculated using a reference group composed exclusively of the four analyzed urban nodes, restricting direct comparability with the broader Mexican urban system.

An additional contribution of this research lies in its methodological approach. By employing a standardized classification based on 120 SCIAN activity classes derived from Mexico's Culture Satellite Account (CSCM), the study provides a consistent framework for comparing cultural and creative industries across different urban contexts. This approach addresses one of the methodological limitations identified in previous Mexican studies, where variations in industrial classifications have often restricted comparability between territories. Consequently, the proposed framework may serve as a useful reference for future comparative analyses of creative specialization at both national and regional scales.

Future research should expand the territorial scope to additional Mexican cities, incorporate longitudinal data to examine the evolution of specialization patterns over time, and integrate qualitative approaches capable of exploring the institutional, social, and cultural factors that shape the development of creative ecosystems. Such efforts would contribute to a more comprehensive understanding of the diverse pathways through which cultural and creative industries support regional development and economic transformation.

References

1. United Nations Conference on Trade and Development ([UNCTAD], 2024), Creative economy outlook 2024, United Nations. doi:<https://doi.org/10.18356/9789211065558>
2. Valdivia, M; Quintana, L; Mendoza, M, & Rodríguez I; (2020), Economía creativa en las ciudades de México: Un estudio sobre la presencia y vinculaciones de las Industrias-Ocupaciones Creativas y Culturales en el sistema urbano de México, México: UNAM. doi:<https://doi.org/10.22201/crim.9786073035729e.2020>
3. R. Méndez, J. J. Michelini, J. Prada y J. Tébar, «Economía creativa y desarrollo urbano en España: una aproximación a sus lógicas espaciales.», EURE (Santiago), vol. 38, nº 113, pp. 5-32, 2012. doi:<https://dx.doi.org/10.4067/S0250-71612012000100001>
4. D. Sánchez Serra, Determinants of the concentration of creative industries in Europe: a comparison between Spain, Italy, France, United Kingdom and Portugal, Universitat Autònoma de Barcelona., 2016. <https://hdl.handle.net/10803/377431>
5. J. Prada Trigo y Í. Jiménez Idrovo, «La economía creativa en Ecuador: una aproximación a sus lógicas espaciales a partir del censo nacional económico de 2010,» Entorno Geográfico, nº 10, 2014. doi:<https://doi.org/10.25100/eg.v0i10.3652>
6. A. Mercado Celis, «Distritos creativos en la Ciudad de México en la segunda década del siglo XXI,» Territorios, nº 34, pp. 182-213, 2016. doi:<https://doi.org/10.12804/territ34.2016.08>
7. M. Opaja Alegre y C. Esponda Alva, «Las industrias creativas dentro del desarrollo de las ciudades: perspectivas y estrategias desde un enfoque económico, social y urbano.», de Seminario Internacional de Investigación en Urbanismo, IX Seminario Internacional de Investigación en Urbanismo, Barcelona-Bogotá, 2017. doi:<https://doi.org/10.5821/siii.6421>
8. Instituto Nacional de Estadística y Geografía (INEGI), «Cuenta Satélite de la Cultura de México (CSCM) 2024: Reporte de resultados,» INEGI, 2025. https://www.inegi.org.mx/contenidos/saladeprensa/boletines/2025/cultura/CSCM2024_RR.pdf
9. P. M. Canizalez Ramírez y E. Avilés Ochoa, «Metodología para la clasificación de industrias culturales/creativas en una ciudad media: Culiacán, Sinaloa, México.», Región y sociedad, vol. 30, nº 72, 2018. doi:<https://doi.org/10.22198/rys.2018.72.a784>
10. A. Villarreal González, F. M. Gasca Sánchez y M. A. Flores Segovia, «Patrones de aglomeración espacial de la industria creativa en el Área Metropolitana de Monterrey,» Estudios demográficos y urbanos, vol. 31, nº 2, pp. 331-383, 2016. https://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0186-72102016000200331
11. M. F. Luqueño, «Industrias Culturales y Creativas en Hidalgo. Propuesta metodológica para el análisis geo cultural de las unidades económicas del sector quinario,» Centro de Cultura Digital del Estado de Hidalgo, 2020. <https://ccd.culturahidalgo.gob.mx/estudio-sobre-industrias-culturales-y-creativas-en-hidalgo/>
12. M. Q. Patton, Qualitative research and evaluation methods, Thousand Oaks: 4th Sage Publications, 2015.
13. D. Throsby, Economía y cultura, Madrid: Cambridge University Press, 2001.
14. N. Rantisi, D. Leslie y S. Christopherson, «Placing the Creative Economy: Scale, Politics, and the Material» Environment and Planning A, vol. 38, pp. 1789-1797, 2006. doi:<https://doi.org/10.1068/a39210>
15. T. Flew, «Toward a Cultural Economic Geography of Creative Industries and Urban Development: Introduction to the Special Issue on Creative Industries and Urban Development,» The Information Society, vol. 26, nº 2, pp. 85-91, 2010. doi:<https://doi.org/10.1080/01972240903562704>
16. Florida, R. (2023). The rise of the creative class (Revised and expanded edition). Basic Books.
17. J. O'Connor, «After the Creative Industries: Cultural Policy in Crisis» Law, Social Justice & Global Development, 2016. https://warwick.ac.uk/fac/soc/law/elj/lgd/2016-1/oconnor_finalfinal.pdf
18. Comunian, R., & England, L. (2020). Creative and cultural work without filters: Covid-19 and exposed precarity in the creative economy. Cultural Trends, 29(2), 112–128. <https://doi.org/10.1080/09548963.2020.1770577>
19. United Nations Educational, Scientific and Cultural Organization ([UNESCO], 2022). Re/Shaping policies for creativity: Addressing culture as a global public good. United Nations

Educational, Scientific and Cultural Organization.
<https://www.unesco.org/reports/reshaping-creativity/2022/en>

20. Organisation for Economic Co-operation and Development. ([OECD] (2022). Culture and local development: Maximising the impact. OECD Publishing. <https://doi.org/10.1787/9a855be5-en>
21. Instituto Nacional de Estadística y Geografía (INEGI), «Sistema de Cuentas Nacionales de México: Fuentes y metodologías [Documento metodológico],» 2023. https://www.inegi.org.mx/contenidos/productos/prod_serv/contenidos/espanol/bvinegi/productos/nueva_estruc/889463913825.pdf
22. Instituto Nacional de Estadística y Geografía (INEGI), «Directorio Estadístico Nacional de Unidades Económicas (DENUE) 2026 [Base de datos],» 2026. <https://www.inegi.org.mx/app/descarga/>
23. Instituto Nacional de Estadística y Geografía (INEGI), «Censos Económicos 2024 [Base de datos],» 2024. https://www.inegi.org.mx/programas/ce/2024/#datos_abiertos
24. Instituto Nacional de Estadística y Geografía (INEGI), «Marco Geoestadístico Nacional 2025 [Conjunto de datos geoespaciales],» 2025. <https://www.inegi.org.mx/temas/mg/>
25. R Core Team, _R: A Language and Environment for Statistical Computing_, Vienna, 2026. doi:10.32614/R.manuals <<https://doi.org/10.32614/R.manuals>
26. Secretaría de Turismo del Estado de Jalisco, «Estadísticas en el sector turístico,» Mayo 2026. [En línea]. Available: <https://secturjal.jalisco.gob.mx/invierte-en-jalisco/estadisticas-en-el-sector-turistico>.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

