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MICRO-GEOGRAPHIES OF THE EVOLUTION OF URBAN ECONOMIC CLUSTERS

THE EVOLUTION OF THE TRAFALGAR GARMENT DISTRICT IN BARCELONA, 1900 - 2018

PhD DISSERTATION

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Bellaterra, September 2019



Design of the cover by Rafael Vicente

Universitat Autònoma de Barcelona

Programa de Doctorat en Geografia

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Esta tesis ha podido ser realizada gracias a la concesión de la beca BES-2014-069322 de Formación de Personal Investigador (FPI) por parte del Ministerio de Economía y Competitividad del Gobierno de España (actualmente, Ministerio de Economía y Empresa).

AGRADECIMIENTOS

La realización de la presente tesis doctoral no habría podido realizarse sin el apoyo de muchas personas que me he encontrado en estos cuatro años.

En primer lugar, quiero agradecer a Montserrat Pallarès Barberà y a Ana Vera Martín por aceptar el desafío de supervisar esta tesis, por darme ánimos cuando estaba totalmente bloqueado y perdido y por confiar en mis capacidades en aquellos momentos en los que ni siquiera yo confiaba en mí mismo. En segundo lugar, también quiero agradecer al Departament de Geografia de la Universitat Autònoma de Barcelona por haberme aceptado en el programa de doctorado y ponerme a disposición numerosos recursos que han hecho que el desarrollo de esta tesis fuera más fácil. Es un departamento donde me he sentido como en casa.

Quiero agradecer también a los profesores del departamento que me han acompañado en mí día a día y que se han preocupado por mi trabajo mostrándome su apoyo. A Carme Miralles i Toni Durà, directores del departamento, a Toni Tulla, por ayudarme a conseguir la estancia en Argentina, o a Àngel Cebollada, por sacarme siempre una sonrisa y compartir largas charlas sobre... ¡todo! También agradecer a Antònia Casellas, a Francesc Muñoz Pradas, a Joaquín Recaño y a Grant Saff por los valiosos comentarios que me proporcionaron en las varias comisiones de seguimiento que realicé. Por último, agradecer a otros profesores por haberme aceptado tan bien en el departamento como a Anna Badia, Mireia Baylina, Enric Mendizábal, Esteve Dot o Albert Pèlachs entre otros.

En el tiempo que hice las estancias de investigación en el extranjero he podido conocer también a muchas personas que me han apoyado y ayudado. Gracias al Instituto del Conurbano de la Universidad Nacional General Sarmiento de Buenos Aires por aceptar mi estancia y, en especial, a José Borello por su atención y afectuosa acogida y a Andres Barsky por ser mi guía en los primeros días en la ciudad. También quería expresar mi gratitud al departamento de geografía de la *University of British Columbia* y a Trevor Barnes y a Tom Hutton por ser unos anfitriones y supervisores tan increíbles

en mi estancia en Vancouver. Sin ellos mi experiencia hubiera sido muy distinta. Aprendí mucho de los consejos que me disteis. Gracias también a todos los compañeros del master de *Community and Regional Planning* por acogerme de manera tan cálida.

Esta tesis hubiera sido realmente complicada sin la ayuda de todas aquellas personas que me dieron una parte de su tiempo para hacerles las entrevistas en profundidad o compartir algún momento informal en los innumerables paseos que di por las calles del distrito. Por otra parte, quería agradecer especialmente al *Foment del Treball Nacional* y al *Centre de Documentació i Museu Tèxtil* por abrirme sus puertas para que pudiera rebuscar entre sus archivos.

Mención especial se merecen todos aquellos compañeros y compañeras que han pasado por el departamento y con los que he tenido la suerte de coincidir como Matteo, Hyerim, Briana, Lili, Eloi, Azahara, Guillem, Dani, Monika, Joan Checa, Aritz, Francesco, Mónica, Mario, Margot, Paula, Juanjo, Camila, Oriol Roig, Vero, Gino o Ramiro. Sin este increíble grupo de gente estos cuatro años no hubieran sido, ni por asomo, tan gratificantes. Un agradecimiento especial merece Xavi Delclòs. Gracias por la paciencia y por sacar siempre (y digo siempre) un momento para contarte mis avances, problemas, alegrías, dudas o penurias. Han pasado ya siete años desde que coincidimos en el máster y estoy muy contento de que hayamos forjado una amistad tan increíble.

También quiero agradecer en especial a Roser. Gracias por haber compartido conmigo tantos y tantos momentos, por apoyarme en momentos complicados, por acompañarme a Boston y por escuchar mis avances de la tesis con la misma ilusión con que te las contaba. Gracias por todo ello y por mucho más.

No me olvido de mi tierra. De mi Elche natal. No me olvido de toda aquella gente que aun teniéndola muy lejos he sentido su apoyo incontestable. Gracias a todos vosotros, a Paco, a Carles, a Adán, a Suse, a Santi, a Ana a Javi, a Erika, a Sensi y a Victor. Gracias también a Marina, a Carlitos y a Jesús por querer verme siempre que bajo a la *terreta*. No me olvido de los ilicitanos que han vivido estos años conmigo en Barcelona. A Pablo y Sandra. Sin vosotros no sé qué hubiera sido de mí. Mil gracias por acogerme en

vuestra casa cuando recién llegué a Barcelona (¡por dos veces!) y de apoyarme en momentos muy complicados. Gracias a Susana y a Xavi (ya eres ilicitano de adopción, Xavi) por todas aquellas cervezas en torno a conversaciones que rayaban el paroxismo intelectual en las ciencias sociales. Me habéis dado consejos muy útiles para lidiar en el mundo académico pero también me habéis enseñado lo que es teneros siempre que lo necesitaba. Os debo mucho.

Por último, y no menos importante, es agradecer esta tesis a mi familia. A mis padres y a mi hermano. Os habéis dejado el alma para que yo pudiera hacer esta tesis en Barcelona. Esto nunca lo voy a olvidar. Gracias por aguantar mis impertinencias y mis cambios de humor. Gracias por escucharme, entenderme y aconsejarme.

Si me he dejado alguien en el tintero pido disculpas y agradecerle también el haber recorrido este camino conmigo.

ABSTRACT

The small economic changes that can be observed in any neighborhood of any city are a consequence of complex factors not only at an urban scale, but also at a regional, national and international scale. The growing economic globalization means that cities configure a set of economic mechanisms to compete with other cities at a global scale. This process has a direct imprint in the economic structure of intra-urban economic spaces. The thesis aims to contribute to answering the factors that affect the evolution of mature economic spaces in European cities. The case study is the Trafalgar Garment District (TGD), in Barcelona. At the beginning of the 20th century, the TGD was configured as a garment cluster. Throughout the century, the district was losing its nature as a cluster to specialize in the clothing wholesaling. Currently, the economic structure of the TGD is based on activities related to knowledge, creativity and tourism and new micro-economic spaces such as co-workings. Therefore, the present TGD is a new industrial cluster (NIC)

The main hypothesis is that the configuration and evolution of the TGD as both an earlier garment cluster and an NIC responds to multi-scalar and interrelated economic processes. However, the urban scale has a strong explanatory role because of the historical contingencies of Barcelona and the urban specificities of the TGD. The validation of this hypothesis has been carried out through a methodology based on statistical and qualitative methods on the one hand and on the use of a set of primary and secondary source, on the other hand. The research is framed within a theoretical framework that includes several concepts such as agglomeration economies, cluster, lock-in and new industrial clusters (NICs). The interrelation of these concepts aids to analyze in a polyhedral way the configuration and evolution of the TGD.

The thesis concludes that the configuration and evolution of the TGD is the result of multi-scalar economic processes. However, these cannot be understood without taking in account the Barcelona's economic processes and the own economic, historical and economic characteristics of the TGD.

Keywords: agglomeration economies, cluster, lock-in, garment-related industry, fashion wholesaling trade, co-working, Trafalgar Garment District

RESUMEN

Los pequeños cambios económicos que se aprecian en un barrio cualquiera de una ciudad cualquiera son consecuencia de complejos factores que atienden no sólo a una escala urbana sino también a una escala regional, nacional o internacional. La creciente globalización económica comporta que las ciudades configuren una serie de mecanismos económicos para poder competir con otras ciudades a escala global. Este proceso tiene una impronta directa en la estructura económica de espacios económicos intraurbanos. La presente tesis tiene como objetivo contribuir a responder sobre los factores que afectan a la evolución de espacios económicos maduros en ciudades europeas. El caso de estudio es el Distrito Textil de Trafalgar (DTT), en Barcelona. A principios del siglo XX, el DTT se configuró como un clúster textil. A lo largo del siglo, el distrito fue perdiendo su condición de clúster para especializarse en el comercio mayorista de ropa. Actualmente, la estructura económica del DTT está enfocada a actividades basadas en el conocimiento, la creatividad y el turismo y a micro espacios económicos como los coworkings. Por lo tanto, el actual TGD es un *new industrial cluster* (NIC).

La hipótesis principal es que la configuración y evolución del DTT primero como clúster textil y después como NIC responde a procesos económicos multi-escalares e interrelacionados. Sin embargo la escala local tiene un fuerte rol explicativo debido a contingencias históricas específicas de Barcelona y a especificidades urbanas del TGD. La validación de esta hipótesis se ha realizado a través de una metodología basada en métodos estadísticos y cualitativos y en la utilización de una serie de fuentes de datos que abarca fuentes primarias y secundarias. Por otra parte, la investigación se enmarca dentro un marco teórico que comprende varios conceptos tales como las economías de aglomeración, clúster, *lock-in* y los NIC. La interrelación de estos conceptos ayuda a analizar de manera poliédrica la configuración y evolución del DTT.

La tesis concluye en que, a pesar de que la configuración y evolución del TGD es resultado de procesos multi-escalares, éstos no se pueden entender sin los procesos económicos de Barcelona y en las características históricas, urbanas y económicas propias del TGD.

Palabras clave: economías de aglomeración, clúster, *lock-in*, industria textil, comercio mayorista de moda, coworking, Distrito Textil de Trafalgar

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ACRONYMS

ATU	Apartments for touristic use	NIC	New industrial cluster
CAD	Computer-aided design	NYGD	New York Garment District
CBD	Central Business District	NYMA	New York Metropolitan Area
CLC	Cluster life cycle	RMB	Regional Metropolis of Barcelona
CIT	Confederation of the Textile Industry	SAIB	System of Analysis of Iberian Balances
CIY	Catalonian Industrial Yearbook	TGD	Trafalgar Garment District
CMT	Clothing manufacturing and trade	TIACP	Textile Industrial Association of Cotton Process
DM	Dongdaemun Market	TLR	Touristic lodging registration
F2F	Face to face		
GMI	Global Moran's I		
HA	Hotel-apartments		
ICT	Information and communication technologies		
ILC	Industrial life cycle		
I-O	Input-output		
LES	Lower East Side		
LMI	Local Moran's I		
MAB	Metropolitan Area of Barcelona		
MAR	Marshall-Arrow-Romer		
MFA	Multifiber Agreement		
MNR	Multinational retailer		
NE	New economy		

CHAPTER 1 INTRODUCTION

1.1 Why the Trafalgar Garment District? Main contributions to economic geography

Cities have become a first-order object of study for analyzing the economic consequences of contemporary multi-scalar economic changes in urban settings. The ongoing importance of knowledge-, creativity- and ICT-based activities is stimulating the transformation of the economic structure of cities. The main objective of cities is to become increasingly competitive and climb the global urban hierarchy (Sassen, 2001). This process entails an imprint in intra-urban spaces. Thus, since the beginning of the 21st century, intra-urban spaces are receiving special attention in order to understand the economic dynamics of the cities of today (Barnes & Hutton, 2009; Dot Jutgla, 2015; Heebels & Van Aalst, 2010; Isaksen, 2004).

This thesis aims to contribute to this field by analyzing the configuration and evolution of the Trafalgar Garment District (TGD) from the beginning of the 20th century until the present day. The thesis provides different discussions within the field of economic geography. The first pertains to the spatiality of Barcelona's textile industry during the 20th century. The literature has long focused on the industry's manufacturing side (Nadal *et al.*, 2012; Raveaux & Sanchez, 2010; Tatjer, 2006), yet the location and evolution of clerical-, logistic- and trade-based activities have remained under-researched. This geographical analysis of the TGD fills that gap. The second discussion concerns post-crisis economic transformations in inner urban areas. In the 2000s, Thomas Hutton (2004, 2006, 2008) provided empirical evidence regarding both the urban location of new economy (NE) activities and the configuration of new industrial clusters (NICs). Through its own empirical results, the present dissertation updates Hutton's studies by studying new economic dynamics in urban settings, such as the emergence of co-workings (CWs).

The thesis is based on both a multi-approach theoretical framework and an exhaustive methodology. The literature review ties together several concepts in order to frame the analysis of the TGD. On the one hand, concepts such as agglomeration economies (Marshall, 1890, 1920), industry life cycle (Gort & Klepper, 1982; Klepper, 1997) and lock-in (Grabher, 1993) contribute to the analysis of the configuration and evolution of economic spaces. On the other hand, topics such as cluster theory (Bathelt *et al.*, 2004; Maskell & Malmberg, 2002; Porter, 1990) and industrial urbanism (Florida, 2004; Hall, 2000; Hutton, 2008; Scott, 2011a) provide knowledge that can be used to understand intra-urban economic dynamics and, particularly, the transformation of urban garment districts. Concerning the methodology, spatial cluster analysis is conducted to study the configuration and evolution of the TGD as a garment cluster. To this end, data related to textile and clothing manufacturing and garment wholesaling have been collected. The data are derived from a set of almost unexplored sources of information dating from the second half of the 19th century until the present.

In sum, the TGD offers updated information about the study of economic transformations in inner urban areas in European cities, particularly in Barcelona. On the other hand, the present thesis contributes by filling several gaps in the literature in different topics. The first centers on the textile industry and complements activities such as clothing manufacturing and the wholesaling trade. The use of several previously unexplored secondary sources and the application of geographic information systems (GIS) significantly complement the existing literature. The second focuses on current economic dynamics in Barcelona. Two important facts underlie this topic: the 22@Barcelona project, which represented the starting point in the city's evolution into a knowledge-based economy; and the financial crisis that started in 2008 and had urban and economic consequences in the 2010s. Both have undoubtedly affected certain urban plots, one being the TGD, even though prior research has overlooked such spaces. Thus, the present thesis aims to be the starting point of new studies regarding economic dynamics in 21st-century Barcelona.

1.2 Objectives and research questions

1.2.1 Objectives

The dissertation aims to analyze the main mechanisms and processes that stimulated the TGD's economic transformation from a garment cluster to an NIC from 1900 to the present. Concepts such as agglomeration economies (Glaeser, 2010; Krugman, 1991; Marshall, 1920), clusters (Bathelt *et al.*, 2004; Porter, 1990), lock-in (Grabher, 1993) and NICs (Hutton, 2004b, 2008) provide the main theoretical framework of the dissertation.

The four concepts are closely interrelated. First, agglomeration economies are a traditional concept in economic geography and urban economics that explain the causes of the spatial concentration of economic activities. Second, the cluster concept provides insights about the competitive advantages of industries and their geographical consequences. Third, lock-in explains why mature industries experience a rigidity that prevents them from upgrading their internal economic structures, as well as how this is translated in specific specialized productive spaces (i.e. a cluster). The underlying mechanisms in this process respond to technological innovation processes (technical lock-in), the degree of the industry's openness (cognitive lock-in) and to institutional thickness (political lock-in). Finally, NICs provide insights about new productive organizations in inner urban areas in the NE context. The NE represents the echelon following the post-Fordist era in the evolution of relations between productive systems and urban spaces. The NE is broadly characterized by globalization, the intensive use of information and communications technology (ICT) and the growth of knowledge goods and new patterns of working, while deregulation, employment polarization and precarious forms of work additionally constitute consubstantial features (Perrons, 2004). Thus, NICs are rooted in the spatial concentration of knowledge- and creativity-based firms with an intensive use of ICT. Indeed, NICs

“act as significant agents of urban change in the 21st century, with implications for the reassertion of production in the inner city” (Hutton, 2004: 89).

The consequences of NICs encompass socioeconomic and environmental impacts such as the reconfiguration and regeneration of urban areas, growth of employment, the development of regional linkages and the positive establishment of environmental and cultural amenities (Hutton, 2008). Their impact in North American cities may differ from European cities owing to variations in urban structures and land-use models. Therefore, analysis of the emergence of an NIC in the present TGD may shed light regarding new urban economics in European cities.

The convergence of these four analytical frameworks aids analysis of the TGD's economic evolution (Table 1.1). Agglomeration economies provide insights about the mechanisms that caused the spatial concentration of firms, configuring the TGD as both an earlier garment cluster and an NIC. Clusters seek to disentangle the competitive advantages and disadvantages that facilitate the evolution of the TGD as a garment cluster. Lock-in aids analysis of the TGD as a mature economic space and the reasons behind its decline as a garment cluster. Finally, NIC highlights the causes and consequences of the configuration of the new cluster in the TGD.

Table 1.1 Main and specific insights derived from the theoretical framework

Framework	Main insights	Specific insights
Agglomeration economies	The mechanisms that enable productive concentrations and the reduction of a firm's costs in specific spaces.	Configuration of the TGD as both a garment cluster and NIC.
Cluster	Competitive (dis)advantages of industries and geographical consequences.	Evolution of the TGD as a garment cluster
Lock-in	Mechanisms in the economic rigidity of mature industries and geographical consequences.	Causes of the decline of the TGD as a garment cluster.
New Industrial Cluster	Configuration of new economic spaces in 21 st -century post-Fordist cities.	Causes and consequences of the configuration of the TGD as a NIC.

Source: own elaboration.

This main objective of the dissertation is to clarify and analyze the main factors behind the configuration of the TGD as both garment cluster and NIC, and to examine the factors evolved in its transition.

Specific objective 1

To determine the mechanisms that generate economic agglomerative advantages in the TGD in the emergence of both the garment cluster and NIC in the 20th and 21st centuries.

Specific objective 2

To define the TGD's garment cluster in relation to cluster theories and to highlight the causes of its lock-in from the second half of the 20th century to the present.

Specific objective 3

To examine the role of the TGD among its key garment-related industries.

Specific objective 4

To analyze the causes and consequences of the NIC's configuration in the TGD.

1.2.2 Research questions

The main research question is:

What are the main causes that explain both the configuration of the TGD as both a garment cluster and NIC, as well as its evolution?

The main research question is subdivided into four more specific questions.

Research questions 1 (objective 1)

The TGD has experienced an economic evolution from garment-related to knowledge and creativity-based specialization. Thus, focusing on the mechanisms that engendered the emergence of agglomeration economies is essential to understanding the configuration of both clusters.

The research questions linked to the first main objective are:

1. *What are the mechanisms that facilitated the emergence of agglomeration economies in the TGD, benefiting both the earlier garment cluster and later the NIC?*
2. *Are these mechanisms the same?*

Research question 2 (objective 2)

The different cluster theories complement the explanation of the configuration and evolution of the TGD's garment cluster, its competitive advantages and disadvantages. From the second half of the 20th century, the TGD experienced a lock-in, resulting in the terminal decline of the number of garment-related firms. Therefore, the mechanisms that caused the rise and lock-in of the TGD's garment cluster need to be highlighted.

The research questions linked to the second main objective are:

1. *What were the competitive advantages and disadvantages that stimulated the evolution of the TGD's garment cluster?*
2. *What are the factors that have driven the lock-in of the TGD's garment cluster?*
3. *Are any particular mechanisms or strategies being developed to overcome the lock-in and upgrade the cluster specialization from garments?*

Research question 3 (objective 3)

The evolution of the TGD as a garment cluster might be an explanatory proxy for the evolution of its predominant garment-related industries. Thus, whether the evolution of a cluster could aid in explaining the evolution of its prevailing industries and vice versa will be examined.

The research question linked to the third main objectives is thus:

1. *Does the TGD as a whole follow the trajectory of its dominant garment-related industries?*

Research questions 4 (objective 4)

The TGD's configuration as an NIC concerns the analysis of both the NE's imprints in cities and its consequences at an intra-urban scale.

The research questions linked to the fourth main objective are:

1. *What are the characteristics of the TGD as an NIC?*
2. *What are the predominant factors in the configuration of the TGD as an NIC?*
3. *What are the consequences of the transformation of the TGD into an NIC?*

1.3 Hypothesis

The main hypothesis that will structure the investigation is the following:

The configuration and evolution of the TGD respond to multi-scalar and interrelated economic processes, with the local scale having a strong explanatory role owing both to Barcelona's specific historical contingencies and the TGD's urban specificities.

The sub-hypotheses are the following.

Hypothesis 1 (objective 1)

The mechanisms that facilitated the emergence of agglomeration economies in the configuration of both clusters differ. First, the garment-related firms became spatially concentrated in order to reduce input-output (I-O) relation costs in particular. In contrast, firms prioritizing knowledge and creativity have concentrated in the district in order to take advantage of formal and informal knowledge and information flows.

Hypothesis 2 (objective 2)

The main advantage that caused the positive evolution of the TGD as a garment cluster was the presence of related and supporting industries. The disappearance of headquarters entailed the loss of this advantage, generating the decline of the garment cluster.

Hypothesis 3 (objective 2)

Although the lock-in of the garment cluster has resulted from economic and policy multi-scalar processes, the lack of common strategies of garment-related actors to protect the district's specialization is also the salient factor.

Hypothesis 4 (objective 3)

The current economic situation of the TGD' garment specialization does not follow the general evolution of its predominant garment-related industries.

Hypothesis 5 (objective 4)

The TGD's NIC is a combination between a spontaneous cluster and a signifying new economy precinct and cultural quarter.

Hypothesis 6 (objective 4)

The main factors in the configuration of the NIC are related to hard factors associated with the availability of empty business spaces and transport accessibility.

Hypothesis 7 (objective 4)

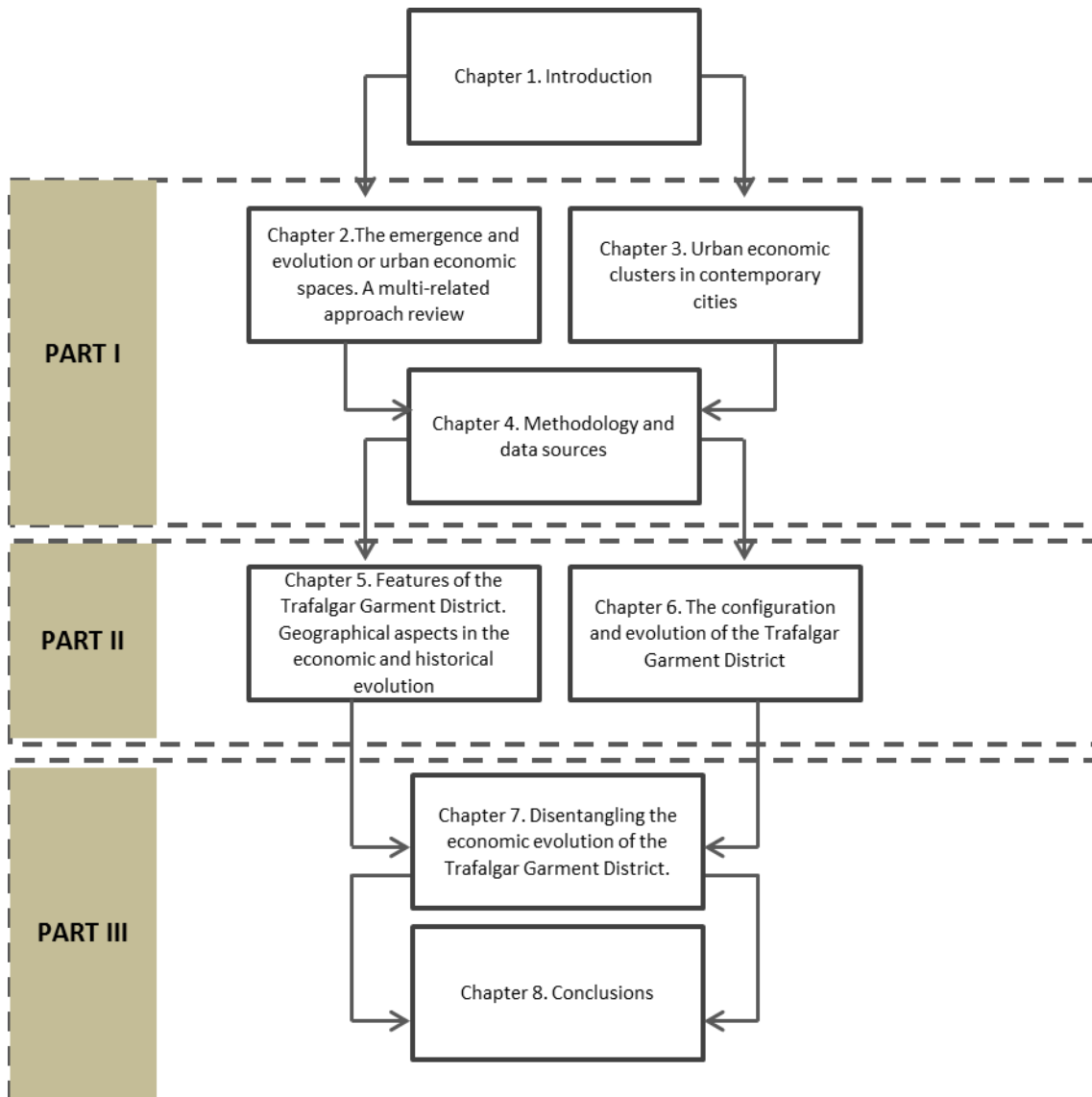
The main consequence of the configuration of the TGD as an NIC is the diversification of its economic structure and a change in perception of the district's collective imaginary from an unpleasant, garment-based space to one that is perceived as far more attractive.

1.4 Structure of the dissertation

The dissertation is structured into three parts, with eight chapters in total (Figure 1.1). The first part frames the theoretical framework (chapters two and three) and methodology and data sources (chapter four). Chapter two reviews the literature related to the configuration of economic spaces through various concepts, such as agglomeration economies, industry life cycle and lock-in. The interrelationship between the three concepts is essential to understanding how industries evolve and their consequences in the transformation of economic spaces. Chapter three is centered on the relationship between clusters and cities, mirrored in the configuration and evolution of garment urban clusters. To this end, the chapter, first, reviews the literature concerning cluster theories, and, second, the relationship between productive systems and cities under the perspective of industrial urbanism.

Chapter four presents the methodology and data sources. Concerning the quantitative methods, spatial statistics were undertaken, especially spatial cluster analysis. In terms of qualitative methods, non-participant observation and in-depth and informal interviews yielded information that reinforced the statistical results. The data sources are classified as either primary or secondary sources.

Figure 1.1 Structure of the thesis



Source: own elaboration.

The second part frames the case study (chapter five) and the results (chapter six). Chapter five presents the economic and historical context of the TGD through the existing literature. The chapter begins in the 19th century, with the Sant Pere neighborhood as the origin of the TGD, before proceeding through the 20th century until the present day. Chapter six presents the results obtained through spatial statistical analysis and interviews. The results focus on the mechanisms that entailed the transition of the TGD from a garment cluster to an NIC.

The third part includes the theoretical discussion (chapter seven) and conclusions (chapter eight). In chapter seven, the results are discussed alongside the theoretical concepts and theories introduced in the literature review. Finally, chapter 8 provides the conclusions and answers the hypothesis underscoring the evolution of the TGD.

**PART I. THEORETICAL FRAMEWORK AND
METHODOLOGY AND DATA SOURCES**

CHAPTER 2 THE CONFIGURATION AND EVOLUTION OF URBAN ECONOMIC SPACES

This chapter proposes a three-pronged approach that can be used to analyze the configuration and evolution of economic spaces in urban settings. First, **agglomeration economies** (Marshall, 1890, 1920) analyze the causes of firms' concentrating in particular spaces. Some aspects concerning agglomeration economies are discussed, specifically the mechanisms that enable spatial productive concentrations and how firms interrelate with one another, as well as the scope (industrial, temporal, geographical) of agglomeration economies. The second approach concerns the **industry life cycle** (ILC) (Gort & Klepper, 1982; Klepper, 1997). ILC is used to explain how firms benefit from agglomeration economies in each phase of their life cycle. Finally, the third approach is the **lock-in** (Grabher, 1993), which analyses the reasons why mature industries decline. The interrelationship between the three concepts permits accurate analysis of the evolution of industries and consequently the transformation of economic spaces.

2.1 The role of agglomeration economies in the emergence of urban economic spaces

2.1.1 Mechanisms in the configuration of agglomeration economies

Through his industrial district theory, Alfred Marshall (1842–1924) first highlighted the importance of agglomeration mechanisms in the emergence of spatial economic concentrations. The three main mechanisms that configure agglomeration economies are sharing inputs, labor pools and knowledge spillovers (Marshall, 1890). Agglomeration economies are the economic benefits that emerge from economic concentrations in specific spaces, and are classified in localization or urbanization economies (Hoover, 1963, 1968). Localization economies refer to those benefits that

arise from the concentration of similar firms within the value chain. On the other hand, urbanization economies emerge from the benefits related to a city's size, such as inter-industry linkages.

The first mechanism, sharing inputs, is exemplified in the spatial concentration of manufacturing industries (Atwood, 1928; Broadberry & Marrison, 2002; Ellison *et al.* 2010; Helfgott, 1959; Rantisi, 2004). The need to share inputs in order to produce finished products encourages manufacturing firms to spatially cluster and thereby benefit from localization economies. This process is the consequence of the fragmentation of the value chain and thus triggers firms' specialization in some specific production processes. The main benefits include cost savings in transport and inventory costs that can achieve external economies of scale. Numerous authors have confirmed this statement. For instance, Ellison *et al.* (2010) have analyzed the drivers of the co-agglomeration patterns of manufacturing sectors through data of commodity flows. They conclude that Marshall's three mechanisms are equally important, although I-O relations stand out. Rosenthal and Strange (2001) arrive at a similar conclusion after testing Marshall's mechanisms at the state, regional and county levels. Indeed, they note that I-O linkages are more important than other mechanisms at the state level but less significant at smaller scales. However, the New York Garment District (NYGD) is a textbook case study of the emergence of agglomeration economies through I-O linkages at the intra-urban scale. In the middle of the 20th century, the NYGD comprised a set of interrelated agents that exchanged a range of inputs, shaping the ready-to-wear value chain (Helfgott, 1959; Rantisi, 2004). Although I-O relations remain important, today knowledge and information exchanges have become essential in the NYGD in order to negotiate particular changes in fashion markets (Rantisi, 2004). The above-mentioned instances confirm that the fragmentation of the value chain has stimulated the spatial concentration of firms, thereby increasing intra-industry relations and consequently the specialization of economic spaces (i.e. industrial clusters or industrial districts) (Goldstein & Gronberg, 1984; Holmes, 1999). However, Cainelli and Iacobucci (2012) additionally stress that a manufacturing firm's vertical disintegration enhances inter-industry relations. The spatial proximity of intermediate service firms dissuades manufacturing firms from integrating service-

based activities within their production chains. The main consequence is the strengthening of linkages with different service-based industries in emerging urbanization economies.

Relative to manufacturing activities, services have received less attention, although there are some exceptions. In the production chain of service-based firms, other services than physical goods are the main inputs. The few empirical studies have focused on advanced services in Milan and London to highlight the importance of urbanization economies. In the case of Milan, the degree of vertical disintegration of knowledge-intensive business services (KIBS)¹ is contingent on the city's size (Antonietti & Cainelli, 2016; Antonietti *et al.*, 2013). This result implies that KIBS are more predisposed to locate in economically variegated cities, where they have greater potential to work alongside other service-based producers, intermediaries or consumers. In the same line, management and engineering consultancies concentrate in London to benefit from proximity and access to clients (Keeble & Nachum, 2001).

The second mechanism refers to labor pool markets. The spatial concentration of workers reduces firms' costs in the search for workers and vice versa (Rosenthal & Strange, 2004). Regarding high-technology firms, Fallick *et al.* (2006) and Freedman (2008) have highlighted that the greater the concentration of the software industry, the higher the job mobility of highly skilled workers, stimulating the faster transmission of knowledge (Fallick *et al.*, 2006). Urban environments play an important role in attracting highly skilled workers, the so-called *creative class* (Florida, 2002). Cities' appeal is based on the development of a set of features framed in the 3 T's approach: technology, talent and tolerance. In this way, a pool of skilled workers would concentrate in specific cities, attracting new ones and consequently knowledge- and creative-based firms. Although Richard Florida's arguments have become popular among policy makers, they have lights and shadows. Some authors have argued that the theory has some inconsistencies. First, it is difficult to ascertain whether workers attract firms or vice versa (the chicken or the egg?) (Van Oort *et al.*, 2003). Second, Florida does not focus on the socioeconomically uneven consequences of a creative-

¹ The knowledge intensive-business services (KIBS) are those business featured by 1) the production and consumption of knowledge; 2) the intensive interaction between supplier and user; and 3) the devotion to consultancy tasks (Strambach, 2008).

attraction policy (Peck, 2005). Low-tech manufacturing also stimulates the concentration of labor pools in urban environments, but oriented towards low-skilled workers (Overman & Puga, 2010). Both points are congruent with Arauzo-Carod's (2008) observation that urban settings are important due to their concentrations of both skilled and unskilled workers.

The third mechanism pertains knowledge spillovers. Marshall noted that "*the mysteries of the trade become no mysteries; but are as it were in the air*" (Marshall, 1890: 156) as a way of admitting that knowledge circulated without boundaries between workers gathering specific skills from the "*industrial atmosphere.*" Currently, different proxies are applied in order to highlight the importance of knowledge in the configuration and reinforcement of economic concentrations, such as new product introductions, product announcements in trade magazines, patents, the presence of R&D laboratories and workers or wages (Acs *et al.*, 2002; Audretsch & Feldman, 1996; Buzard *et al.*, 2017; Carrincazeaux *et al.*, 2001; Jaffe *et al.*, 1993; Rosenthal & Strange, 2003; Thompson & Fox-Kean, 2005). When statistical data are unaffordable, qualitative technics (i.e. in-depth interviews) become useful tools to shed light on knowledge exchange (Capdevila, 2013; Chapain *et al.*, 2010; Cohendet *et al.*, 2010; Darchen & Tremblay, 2015; Isaksen, 2004; Schmidt *et al.*, 2015; Trippel *et al.*, 2009). The above-mentioned studies help contribute to the long-term debate regarding how knowledge is exchanged and spills over. Porter (1990) has stressed the importance of competition between firms to optimise already acquired knowledge and ultimately transform into new innovations. Thus, the importance of localization economies is fundamental. In the same vein, Jacobs (1969) is in agreement as to the importance of competition. However, she stresses that the source of knowledge externalities lies outside the industry itself, underscoring the significance of economic diversity in specific spaces.

Knowledge does not spill over homogeneously at all geographical scales. In contrast to empirical studies focused on state and regional scales of analysis (Alcácer & Chung, 2007; Audretsch & Feldman, 1996; Buzard *et al.*, 2017; Carlino & Kerr, 2015; Carrincazeaux *et al.*, 2001; Cooke & Morgan, 1998; Trullén & Boix, 2008), some authors have stressed that knowledge spillovers disappear rapidly at an intra-urban level (Rosenthal and Strange, 2001, 2003) or even at a more disaggregated scale (Arzaghi &

Henderson, 2008). However, the importance of the sharing economy as a new emergent economic model (Cohen & Kietzmann, 2014) and the ongoing role of knowledge and ICT-intensive use in high value-added activities are pushing the general focus to the micro-urban scale. One of the most interesting and constantly updated topics is CWs (Gandini, 2015; Merkel, 2015; Moriset, 2014). A CW consists of a generally diaphanous space where a group of independent professionals (freelancers), most of whom are dedicated to knowledge- and creativity-related activities, share the same working space. With the objective of breaking entrepreneurs' isolation, CWs have been introduced as sharing spaces to weave social and working relationships with other co-workers from different backgrounds. The main aim of CWs is to aid co-workers to reach their work objectives, enhancing interaction between them through meetings and business- and social-related events, among other activities. The consequence is the benefit

“from externalities at a low cost, thus reducing the cost of information seeking and knowledge transfer” (Capdevila, 2013: 4)

Given the novelty of CWs as microeconomic spaces, several issues related to knowledge spillovers remain unexplored. Some key topics include economic consequences at a microscale of both knowledge exchange between co-workers and knowledge flows between insiders and outsiders from CWs. Nevertheless, some authors have identified some highlights in these topics. Parrino's (2015) analysis of how knowledge is exchanged underscores the importance of CWs' internal organizational platforms in fostering knowledge flows between co-workers, thus helping “to expand the network of collaborations and labor services of the co-workers” (pp. 270). In relation to knowledge exchange with external agents, Capdevila (2013) has shown that CWs act as intermediates connecting independent professionals with large formal firms. This process helps expand knowledge beyond physical boundaries and contributes to local development.

2.1.2 The scope of agglomeration economies

The scope of agglomeration economies is industrial, temporal and geographical. Although the present thesis is based on the intra-urban scale, all three components are discussed at an intra-metropolitan scale. Even though some authors have suggested the intra-urban scale as the one that may contribute the most in the analysis of agglomeration economies (Garcia-López & Muñiz, 2013; Parr, 2002). However, there is a lack of studies that have focused on this scale, with some exceptions (Méndez-Ortega & Arauzo-Carod, 2019; Rosenthal & Strange, 2001, 2003, 2005; van Soest, *et al.*, 2006). Therefore, the intra-metropolitan scale, whose spatial unit of analysis includes municipalities, real estate markets and local labor systems (Drennan & Kelly, 2011; Paci & Usai, 1999; van Oort & Atzema, 2004; Viladecans-Marsal, 2004) is considered as the closest level to the intra-urban one.

The industrial scope focuses on a firm's production function and the benefits it derives from localization or urbanization economies. The economic specialization of urban spaces entails the generation of localization economies. The defragmentation of the value chain encourages firms, which are devoted to specific production tasks, to concentrate spatially. On the other hand, the economic diversification of cities and the presence of public assets enhance the emergence of urbanization economies. The consequence of both situations is that firms will save costs related to transport, labor exchange, information and knowledge, among others.

The literature regarding localization and urbanization economies at the intra-metropolitan scale is remarkable (Table 2.1). Most analyses have focused on manufacturing industries (both traditional and high-tech), services and to a lesser degree on advanced ICT-, knowledge- and creativity-based activities. In terms of manufacturing industries, the results differ contingent on the extent to which ICT is used. Traditional manufacturing industries tend to follow own-industry firms (Rantisi, 2002, 2004; Scott, 1984), while more technologically advanced counterparts benefit from industrial heterogeneity (Arauzo-Carod & Viladecans-Marsal, 2009; Jofre-Monseny, 2009; Jofre-Monseny *et al.*, 2014; Viladecans-Marsal, 2004). However, with a more aggregated industrial code level of industries and services, Rosenthal and Strange

(2005) have stressed the importance of localization economies in the birth of new firms, including manufacturing, wholesale trade, services and FIRE,² in the New York Metropolitan Area (NYMA). The discrepant results may owe in part to the accuracy of the data available (Beaudry & Schiffauerova, 2009).

Table 2.1 Empirical literature review about intra-metropolitan localization and urbanization economies

	Main contributors	Main insights
Quantitative approach	Arauzo-Carod & Viladecans-Marsal (2009); Britton <i>et al.</i> (2009); Jofre-Monseny (2009); Jofre-Monseny <i>et al.</i> (2014); Lazzeretti <i>et al.</i> (2009); Rosenthal & Strange (2005); Viladecans-Marsal (2004)	<ul style="list-style-type: none"> • Initial industrial sectors benefit more from urbanization economies. Mature industries highly benefit from localization economies. • Direct relation between technology's degree in the industries and their level spatial concentration in cities. • Knowledge- and creative-based activities concentrate in large cities in order to benefit from information and knowledge spillovers. • Urbanization economies act as centripetal forces in knowledge- and creative-based activities.
Qualitative approach	Heebels & Van Aalst (2010); Hutton, (2008); Isaksen (2004); Martin-Brelot <i>et al.</i> (2008); Martin (1964); Rantisi (2002, 2004) Scott (1984, 1996)	

Source: own elaboration.

Contrary to the statistical analysis, qualitative methodologies have also been applied, primarily with the aim of analyzing the spatial concentration of advanced services such as knowledge- and creativity-based activities. Gong and Hassink (2017) have reviewed the literature concerning the role of agglomeration economies in the location of creative industries, and have identified the importance of both localization and urbanization economies. The main advantage for creative firms in co-locating is to take advantage of proximal rapid flows of information and knowledge through a set of “*place-specific conventions, rules, norms and practices*” (Gong and Hassink, 2017: 587), creating tacit

² Financial (F), Insurance (I) and Real Estate (RE)

knowledge³ through face-to-face contact (F2F) (Boschma, 2005). This process enhances the creation of localization economies and strengthens formal and informal relationships, thereby fostering knowledge and the sharing of information (Isaksen, 2004; Saxenian, 1994). On the other hand, urbanization economies also play a fundamental role. The importance of both large demand markets (Isaksen, 2004) and inter-industry networks based on knowledge and information flows stimulates firms to locate in economically variegated urban areas. Cities' specificities and contingencies related to historical, political, socioeconomic and urban aspects also provide a centripetal force (Hutton, 2008). Musterd *et al.* (2007) have classified urbanization economies into hard and soft factors. The former are related to "tangible" aspects such as the quality of public services, urban accessibility, institutional thickness and educational-, housing- and leisure-based politics, among others. Meanwhile, soft factors are "intangible" aspects closely related to Richard Florida's approach (2004), including urban culture, lifestyle or the open-mindedness of the society. Empirical studies on knowledge- and creativity-based clusters underscore the above-mentioned aspects, such as the size of local demand markets, affordable housing stock, cultural density and consumption diversity, a highly skilled labor pool or even the urban built environment (Martin-Brelot *et al.*, 2008; Lazzeretti *et al.*, 2009; Heebels and van Aalst, 2010; Hutton, 2008).

The temporal scope focuses on how long the effects of agglomeration economies last and how they change. Thus, the effects of spatial economic concentration are not only derived from the present local advantages, but also from their lagged effects. They are known as dynamic economic externalities and they

"deal with the role of prior information accumulations in the local area on current productivity and hence employment. Such accumulations are fostered by a history of interactions and cultivated long-term relationships, which lead to a buildup of knowledge ("local trade secrets"), available to firms just in a local area." (Henderson, 1995: 1068)

³ Tacit knowledge "is often related to specific ways of doing things that emerge in particular places. Tacit knowledge is often context dependent, being facilitated by a common language, culture and value system" (Pinch *et al.*, 2003: 375).

There are two types. First, localization dynamic economies or Marshall-Arrow-Romer (MAR) externalities (Glaeser *et al.*, 1992) are derived from economic specialization, the importance of which remains throughout the period of time (Glaeser, 1992). Second, urbanization dynamic economies or Jacob externalities (Jacobs, 1969) underscore the lagged benefits of economic diversification's effects. The empirical literature concerning dynamic externalities is focused on quantitative methods and is not extensive (Table 2.2). Cities' traditional economic specializations in a given industry help attract firms in the same industry (Ellison *et al.*, 2010; Henderson, 2003). However, the diversity of workers – Jacob externalities – is a fundamental factor in attracting high-tech and service-based industries (Arauzo-Carod & Viladecans-Marsal, 2009; Combes, 2000; Jofre-Monseny, 2009). Unfortunately, there is not yet an extensive debate focusing on the temporal scope of the spatial concentration of knowledge- and creativity-based industries, because both are relatively new industries without accurate temporal data.

Table 2.2 Empirical literature review about intra-metropolitan MAR and Jacob externalities

	Main contributors	Main insights
Quantitative approach	Arauzo-Carod & Viladecans-Marsal (2009); Combes (2000); Drennan & Kelly (2011); Ellison <i>et al.</i> (2010); Erickson & Wasylenko (1980); Henderson (2003); Henderson <i>et al.</i> (1995); Jofre-Monseny (2009); Rosenthal & Strange (2003); van Oort & Atzema (2004)	<ul style="list-style-type: none"> • Diversification enhances city growth. • Jacobs externalities are more important in newer industries, while MAR externalities in more traditional ones.

Source: own elaboration.

In an attempt to conclude the debate regarding the degree to which both externalities are important, Henderson (1995) has stressed how industries benefit from both MAR and Jacob economies depending on the stage of their life cycle. Thus, Jacob externalities are important for industries in their developing stages, while MAR externalities are fundamental for mature industries, retaining them spatially. This point brings into focus the direct relationship between the temporal scope of agglomeration economies

and the industry life cycle, a gap in the literature identified by some authors (Combes, 2000; van Oort and Atzema, 2004).

The geographical scope is centered on the spatial dimension of agglomeration economies (Table 2.3). In recent years, the scale of analysis has become a fundamental input in research regarding agglomeration economies (Arauzo-Carod, 2008). In the last fifteen years, large-scale geographical data have become increasingly accessible, allowing statistical analysis at an intra-metropolitan scale. Economically variegated cities attract both high-tech and advanced services firms in order to benefit both from innovative milieus and the presence of large demand and supply markets (Arauzo-Carod & Viladecans-Marsal, 2009; Drennan & Kelly, 2011; Henderson, 2003). This indicates a correlation between the level of technology and distance from the central city. In the same vein, Martin-Brelot *et al.* (2008) have noted that Toulouse exerts a centripetal force on creative-based firms due to the size of the city, its large demand and supply markets and policies that foster optimal transport infrastructure and housing stocks. These results are in line with those obtained in the Metropolitan Area of Barcelona (MAB) (Coll-Martínez *et al.*, 2017). In the MAB, those creative-related activities that rely on symbolic knowledge (advertising, arts and entertainment, cinema, fashion and publishing) tend to be attracted by highly localized agglomeration economies (1 km round). On the other hand, manufacturing creative activities (printing) tend to disperse along the MAB in order to gather cost advantages.

However, empirical studies at the intra-urban scale have provided the most significant results (Méndez-Ortega & Arauzo-Carod, 2019; Rosenthal & Strange, 2003, 2004, 2005; van Soest *et al.*, 2006). Through statistical methods, Rosenthal and Strange (2005) have used NYMA's zip codes to demonstrate that agglomeration economies dissipate rapidly over a few miles, indicating that "*urban interactions are highly local in nature*" (Rosenthal & Strange, 2005: 45). Also using the zip code scale in the Netherlands (in this case the zip codes' dimensions are smaller than in the NYMA), Van Soest *et al.* (2006) have arrived at the same conclusion, reinforcing how agglomeration economies emerge at a lower scale than that of the city. Both results have been corroborated by Méndez-Ortega and Arauzo-Carod (2019) in their study of the software and videogame industry in Barcelona. Through the geolocalization of firms, they provide

insights about the location of both industries within Barcelona. The main result is their concentration in the 22@Barcelona (Poblenou neighborhood) thanks to a cluster policy based on attracting knowledge- and ICT-based firms.

Table 2.3 Empirical literature review about agglomeration economies extent at intra-metropolitan and intra-urban scales

	Main contributors	Main insights
Intra-metropolitan	Arauzo-Carod & Viladecans-Marsal (2009); Coll-Martínez <i>et al.</i> (2017); Drennan & Kelly (2011); Graham (2003); Henderson (2003); Jofre-Monseny (2009); Martin-Brelot <i>et al.</i> (2008); Viladecans-Marsal (2004)	<ul style="list-style-type: none"> • Agglomeration economies dissipate rapidly from urban central areas. Presence of large demand and supply markets.
Intra-urban	Quantitative approach	<ul style="list-style-type: none"> • Importance of high dense urban cities/neighborhoods for high-tech manufacturing industries and advanced services for taking advantage of knowledge spillovers.
	Qualitative approach	<ul style="list-style-type: none"> • Intra-urban specificities and historical contingencies are important explanatory factors to understand present economic spaces. Importance of the micro-geographies of space.

Source: own elaboration.

In most cases, statistical data at the intra-urban scale are not accessible. Here qualitative methods (i.e. in-depth interviews and observation methodologies) have also contributed to the analysis of agglomeration economies in intra-urban spaces. The results have confirmed the significance of inner urban plots owing to the importance of close interactions between different actors (Barnes & Hutton, 2009; Casellas & Pallares-Barbera, 2009; Dot Jutgla, 2015; Heebels & Van Aalst, 2010; Hutton, 2008; Isaksen, 2004; Méndez & Sánchez Moral, 2011; Rantisi, 2002; Scott, 1984), offering: 1) proximity to suppliers and consumers; 2) the ability to take advantage of policies oriented towards a knowledge-based economy, encouraging intra-urban revitalization by attracting

creative industries; and 3) the potential to benefit from intra-urban specificities, which compose an original built environment. However, the emergence of CWs requires that the geographical scope of agglomeration economies be reinterpreted. The spatial concentration of co-workers devoted to specific specializations has facilitated the development of knowledge and information linkages, forming knowledge-based micro-networks underlying the so-called *community* (Capdevila, 2013; Parrino, 2015).

In sum, the empirical literature regarding the geographical scope of agglomeration economies has highlighted the importance of large cities – and also specific intra-urban spaces – in attracting both highly innovative and competitive sectors. Therefore, the geographical scope is essential to the analysis of agglomeration economies as well as diverse topics such as the direct relationship between land rent and a firm's competitiveness (Alonso, 1960; von Thünen, 1842) or the industry life cycle and its spatial consequences (Klepper, 1997).

2.2 Agglomeration economies, industry life cycle and urban spatial organization

Each industry experiences a set of phases in its life that affects both its productive organization and manner of benefiting from agglomeration economies, that is, the means of reaching increasing returns. There are five different stages in an industry's life cycle (ILC) (Gort & Klepper, 1982). First, in the development stage the industry sees the introduction of a new product by a single producer, which becomes increasingly important with the growth in number of new competitors. Second, in the growth stage the ratio of entries is positive due to an increase in the number of producers and innovations. In the development and growth phases, firms must locate in innovative milieus, where knowledge is less codified and highly skilled workers and information flows can be found (Cowan *et al.*, 2003; Neffke *et al.*, 2011), mitigating the issue of low levels of technology and innovation within the industry itself. However, as the industry continues to expand, its level of innovation declines. Certain innovations predominate and some firms initiate strategies to become capital-oriented businesses, increasing in size. In the third phase, the mature stage, the ratio of entries is almost

insignificantly associated with structural changes in the industry. The main consequences include the decrease in the number of firms, while barriers to entry become greater, hampering new entrants from competing with pioneers. However, pioneer firms become even more capital-oriented, adopting vertical-integration organizations (Klepper, 1997; Langlois & Robertson, 1989), which implies a substitution of external to internal economies of scale in order to reach increasing returns. Nevertheless, some mature industries tend to adopt more flexible forms of industrial organization to respond more quickly to highly segmented and volatile demand markets (Piore & Sabel, 1984; Scott, 1988a, 1988b). This model of intra-industry organization is based on a flexible production characterized by

“updated innovation, the decentralized and small-batch production, the small firm and a more diffuse development on the territory.” (Méndez, 1997: 245)

An industrial organization based on flexible production requires vertical and horizontal inter-firm linkages, facilitated by proximity between firms from the same industry so that they may benefit from agglomeration economies (Scott, 1982). One instance is the fashion industry. The high segmentation of the demand entails rapid changes in the market, causing firms’ specialization within the production process. Hence, in order to minimize costs, firms depend on localization economies, resulting in spatial clustering. However, “*high quality producers are less inclined to such division of labor*” (Scott, 1984: 4) for two reasons: first, large investments in both R&D and technology enable them to negotiate volatile demand markets more easily (Kilduff, 2000), and second the focus on specialized demand markets permits the development of longer-cycle products such as automobiles, medical clothing or civil engineering (Kumar, 2014).

The fourth phase is the decline stage, where the ratio of new producers is negative and represents the end of the industry’s restructuring. Finally, the fifth phase is a second decline period, where the ratio of new entries is approximately zero. In this stage, the market finally shrinks and the product reaches obsolescence. The industry will return to the development stage if new innovations lead to the creation of a new product.

Although the ILC theory focuses on an industrial approach and its theoretical core is related to changes in the nature of innovation (Peltoniemi, 2011), there is a notable gap regarding the spatial consequences of those changes. The trace of an industry through these phases has geographical consequences. Literature is beginning to approach this gap by analyzing the diverse spatial consequences of the evolution of industries through the cluster life cycle theory (CLC) (Bergman, 2008; Crespo, 2011, 2014; Maggioni, 2004; Menzel & Fornahl, 2010). The main statement stresses that the evolution of one industry may cause the configuration of new clusters at the expense of others. A relevant example is represented by the different spatial consequences of the high-tech industry in Silicon Valley and Route 128 (Saxenian, 1994). This dichotomy has resulted from the capacity of firms to respond to varied contingencies through their degrees of innovation.⁴ Despite the important contributions of the CLC to highlighting the spatial multi-paths of industrial dynamics, the geographical gap is not completely covered, especially at an intra-urban scale. However, a set of empirical studies have elucidated economic dynamics at this geographical level through alternative theoretical perspectives. The most evident empirical cases are those related to productive and socioeconomic gentrification processes in inner urban areas (Barnes & Hutton, 2009; Casellas & Pallares-Barbera, 2009; Catungal *et al.*, 2009; Dot Jutgla, 2015; Evans, 2004; Pratt, 2000). Former industrial intra-urban spaces that experienced a deindustrialization process are experimenting with productive “reassertion” through the location of knowledge-, creative- and culture-based firms (Hutton, 2008).

Therefore, the ILC theory needs not only analyze the dynamics of particular industries, but focus on their geographical consequences. This complementary approach would shed light on the relationship between new trajectories of industrial organization and their imprints in intra-urban spaces. In conclusion, the ILC theoretical framework offers a dynamic view of industry evolution (Agarwal & Gort, 1996), serving as a source alongside other concepts for the configuration of the Evolutionary Economic Geography (EEG) paradigm. One such concept is the lock-in (Grabher, 1993), which

⁴ The cluster life cycle theory and its geographical aspects will be reviewed more deeply in the paragraph 3.1.1 *Features of clusters*.

focuses on the causes of the economic rigidity of mature industries, their strategies to overcome it and consequently to upgrade.

2.3 An evolutionary approach in the decline and reorganization of urban economic spaces

2.3.1 Evolutionary Economic Geography. An evolutionary approach

The EEG focuses on the role of history in the evolution of industries, centering on firms' degree of adaptation to different shocks (Boschma & Frenken, 2006; Boschma & Lambooy, 1999; Boschma & Martin, 2010; Boschma, 2004; Coe, 2011). Although the prior foundations of the EEG may go back to the 1980s (Arthur, 1989; David, 1985), the EEG has its sources in different previous paradigms in the field. Boschma and Frenken (2006) have stated that relational and institutional approaches (Amin, 1999; Bathelt & Glückler, 2003; Boggs & Rantisi, 2003) along with the New Economic Geography (Krugman, 1991) provide the foundations of the EEG, deeming it the "*third approach in economic geography*" (Boschma & Frenken, 2006: 274). Unlike New Economic Geography, which is based on the "*utility maximization of economic agents and homogeneity of agents*" (pp. 283), relational and institutional approaches shift the outlook to the behavior and interaction of agents as drivers in the dynamics of economic development (Cooke & Morgan, 1998; Pallares-Barbera *et al.*, 2004). On the other hand, the influence of evolutionary economics (Dosi & Nelson, 1994) and generalized Darwinism (Hodgson, 2009) cannot be denied (Boschma & Lambooy, 1999a; Essletzbichler & Rigby, 2010; Magnusson & Ottosson, 1997). Therefore, the EEG is based on three conceptual foundations (Boschma & Martin, 2010). First, generalized Darwinism is considered a "*metatheoretical framework*" (Hodgson, 2009: 170). Concepts such as variety, heredity, selection and novelty among others are recognized as useful terms in explaining the evolution of industries and economic spaces (Audretsch, 2004; Frenken *et al.*, 2007; Rantisi, 2002; Visser & Boschma, 2004). Second, path dependence aids understanding of how past events draw present outcomes. Extrapolating to economic geography, the characteristics and evolution of industries are conditioned by their historical trajectories (Boschma & Lambooy, 1999a). This process may explain the

historical building of specific mechanisms that aid industries and firms in facing shocks and overcoming challenges (Bathelt & Boggs, 2003; Berndt, 1998; Bode, 2001; Cho & Hassink, 2009; Hassink, 2007). Third, complexity theory is less developed in economic geography and focuses on the economy as a self-organizing entity (Martin & Sunley, 2007).

EEG brings two new insights from a methodological perspective. First, the EEG is based on mixed method-framing qualitative methodologies, i.e. in-depth interviews (Boschma & Weterings, 2005; Cho & Hassink, 2009; Narula, 2002; Schamp, 2005; Sydow *et al.*, 2010), along with statistical methods (Chapman *et al.*, 2004; Rigby & Essletzbichler, 2014). Second, the object of analysis focuses on the behavior of actors (individuals, firms or institutions) and their routines for understanding the evolution of industries (Boschma & Martin, 2007). Analysis of actors' routines (the micro-level of analysis) highlights their degree of adaptation to shocks and consequently helps build understanding of the evolution of industries (macro-level of analysis). Routines

“[...] are manifested at the firm level [...] Routines, as for individual skills, consist of a large part of experience knowledge and tacit knowledge, which are hard to codify. Both aspects of routines render them difficult to imitate by other firms.” (Boschma and Frenken, 2006: 278-79)

The above quotation indicates two remarkable aspects concerning routines. First, the importance of untraded relations – “untraded interdependencies” (Storper, 1997) – as the engine behind knowledge creation (Boschma, 2004). The building of a set of common habits and understandings drives the emergence of tacit knowledge that is hard to emulate and repeat elsewhere (Boschma, 2005; Boschma & Frenken, 2006). Second, firms' routines within a cluster afford the exchange of knowledge, with innovation processes taking place as a result. Therefore, the features of innovation (Bathelt & Boggs, 2003) are 1) context-dependent because they are bounded by a set of agents and institutions; 2) contextual because they are based on their past; and 3) unpredictable until these consequences have occurred.

EEG engenders an evolutionary view of economic geography through narrowing the scale of analysis to the behavior of firms over time. Through this perspective, the evolution of industries receives a path-dependent vision, facilitating understanding of lock-in circumstances. The lock-in concept has received attention for explaining both the causes of the decline of mature industries and their mechanisms to overcome these.

2.3.2 Lock-in as an explanatory concept in the evolution of industries

The downturn of mature industries and consequently the decline of specialized clusters necessitates clarification of the drivers involved in lock-in. The lock-in concept was initially developed by Arthur (1989) and David (1985), who stated the role of history in lock-in processes and the emergence of decreasing returns of scale. However, Gernot Grabher (1960 -) was the pioneer in empirically developing the concept in his work *The weakness of strong ties: the lock-in of regional development in the Ruhr area* (1993). The study focuses on the factors that drove steel and coal complexes in this region to lock-in. There are three lock-ins. First, the functional lock-in centers on the interrelationships between the different actors in a cluster. Second, the cognitive lock-in focuses on the analysis of the varied thinking of the group and how individuals interpret global circumstances. Third, the political lock-in explains the role of the public and private agencies in developing new ways of economic upgrading.

The lock-in concept has been primarily applied to explain industry changes at a regional scale (Cho & Hassink, 2009; Essletzbichler & Rigby, 2007; Hassink, 2007; Wenting & Frenken, 2011). The empirical literature focuses on industries such as automobiles, nuclear power, food processing, footwear or garments, among others (Cho & Hassink, 2009; Cowan, 1990, 1996; Essletzbichler & Winther, 1999; Hassink, 2007; Hudson, 2005; Schamp, 2005; Wenting & Frenken, 2011). Concerning the textile industry, Cho and Hassink (2009) have highlighted the causes of the decline of Daegun's textile industry in South Korea. They stress the rigid structure of the textile industry, which hinders the involvement of higher value-added activities such as fashion, design and trade (functional lock-in). The second factor is the local clientelism exerted by local entrepreneurs (cognitive lock-in), while third are local conservative

values promoted by the weak role of the government in the restructuring of the industry and the power of textile lobbies to maintain local production networks (political lock-in). The main consequence of the three lock-ins is the hampering of the entry of new entrepreneurs, which would entail a restructuring of the industry. In a similar vein, Wenting and Frenken (2011) recognize political lock-in in the development of the ready-to-wear sector in Paris owing to the strong opposition of *haute couture* institutions. The textile industry in the Westmünsterland region presents a very different scenario. Indeed, Hassink (2007) has concluded that the revitalization of the industry and the turn to higher value-added products (technical textiles) has resulted in the weakening of the lock-in of the industry, with consequences including low entry and exit barriers, a large number of small and medium-sized enterprises (SMEs), stronger competition and the weak role of trade unions. In contrast to industrial analysis at the regional scale, Rantisi (2002) has proposed analysis of how an economic space at an intra-urban scale can reinvent itself to avoid a lock-in. The case centers on the NYGD. Thus, Rantisi points out that the NYGD operates as a system of entries and exists of inputs that afford the renovation of the district. This process is materialized in the constant cooperation between the firms within the district and young and independent designers located in the Lower East Side (LES) in the south of Manhattan. Designers in the LES bring new ideas to firms located in the NYGD. Therefore, through the creation of knowledge and information flows between both economic spaces, the LES is considered a “*sub-system of the Garment District innovation system*” (Rantisi, 2002: 598). The knowledge exchange between both economic spaces enables the NYGD to bypass potential lock-ins. However, other methods to overcome a lock-in come from different innovation sources related to

“alternative production organizations, varied production processes, new/improved production methods/process technology, modes of workplace organization or distribution channels.” (Rantisi, 2002: 591.

The case of the NYGD encapsulates how firms take advantage of the agglomeration economies from the city, leading to the survival of the district. However, knowledge exchange is unsuccessful if two issues are not taken into account (Boschma, 2004). First,

local actors should develop the right capabilities in order to absorb that external knowledge; and second both parts should share the same values and expectations.

The Westmünsterland and the NYGD case studies show that to surpass the lock-in it is essential that firms reorient their internal strategies in order to face external and internal shocks. Thus, both cases indirectly demonstrate two interrelated aspects that lead to a lock-in. First, the emergence of external diseconomies can stimulate a lock-in scenario. The fixity of the mechanisms that once caused the emergence of agglomeration economies may later entail a lock-in situation. Martin and Sunley (2006, citing Martin, 2006) demonstrate that at the preliminary stages of the configuration of an economic space, the mechanisms that enhance agglomeration economies reinforce industrial dynamism because they are spatially bounded. However, this positive lock-in may become a negative lock-in owing to

“processes, structures and configurations built up as a result of positive lock-in become a source of increasing rigidity and inflexibility, which undermine the region’s productivity, adaptability and competitiveness, and promote the onset of decreasing returns.” (Martin and Sunley, 2006: 415)

Second, the behavior of firms and their degree of reaction to revert external diseconomies. The mutation of firms’ behaviors (Boschma and Frenken, 2006) becomes a clarifying viewpoint to analyze the degree to which a firm can adapt to face internal and external shocks (Boschma & Frenken, 2006; Essletzbichler & Rigby, 2007). This methodology in turn drives a better understanding of the level of mutation and adaptability of economic spaces. Therefore, the intensity in the change of firms’ outdated routines manifests the degree of response to the emergence of external diseconomies conditioning the trajectory of an economic space. Chapman *et al.* (2004) have developed an interrelated two-level approach to understand the consequences of a firm’s behavior in the trajectory of an economic space. The first approach focuses on the firm’s strategies to face shocks (micro-level). The second approach centers on the different cluster trajectories (meso-level). The degree of response of firms is expressed on the horizontal axis, ranging from *incremental* (minor degree of response) to *radical* (major degree of response). Depending on the intensity of the response, firms will

adopt an *adaptation* (short-term strategy) or *adaptability* (long-term strategy) path. The mechanisms of reorientation associated with both paths are fourfold. *Cost-reduction* and *copying* are related to an *adaptation* scenario and are associated with a minor degree of response. The strategies are the creation of new products or the improvement of processes. In contrast, *innovation* and *diversification* entail a *radical* change in the orientation of the firm, including a “*redeployment of existing capabilities and assets to new directions*” (Chapman *et al.*, 2004: 385).

Finally, the above-mentioned strategies of reorientation stimulate different trajectories in the restructuring of the cluster. The *adjustment* trajectory indicates a short-term reorganization of the cluster based on the development of “*existing trends (...) leading to stagnation in the medium to long-term*” (pp. 385). In contrast, the *renewal* trajectory entails a long-term change focused on altering the previous economic structure and opening up to new dissimilar trajectories (Cooke, 1995; Cooke & Morgan, 1998; Hassink, 2007; Saxenian, 1994; Tödting & Trippel, 2004).

Whilst some authors have theorized about firms’ general strategies to overcome a lock-in or the mechanisms to reach a cluster’s renewal (Martin & Sunley, 2006; Trippel & Otto, 2009; Trippel & Tödting, 2008), Chapman *et al.* (2004) have provided specific mechanisms at the firm level that explain the causes of the different trajectories of a cluster. However, in the analysis of the reorganization of a mature cluster, it is also essential to consider the role of other actors such as research organizations, educational institutions and technology transfer agencies (Trippel & Tödting, 2008).

Finally, we argue that the lock-in concept is a valuable term for the analysis of the evolution of industries. Nevertheless, empirical studies have not sufficiently explored the different possible spatial trajectories that stem from the lock-in of mature industries. Firms within a mature industry can face in a different grade external and internal shocks depending on their degree of flexibility. This unevenness may produce, in parallel, different geographical patterns such as the decline and emergence of specialized clusters at different locations. Thus, the analysis should focus not only on the different trajectories of whole industries, but also on the geographical consequences that emerge from the lock-in of an industry.

2.4 Summary

The main conclusion that derives from the present chapter is that for an optimal analysis of the configuration and evolution of urban economic spaces are required the application of various theoretical concepts. This chapter proposes three concepts being agglomeration economies, ILC and lock-in.

The agglomeration economies aid to understand what the mechanisms are, by which firms benefit from the spatial concentration. These mechanisms are the I-O exchange, labor pools and knowledge spillovers. On the other hand, agglomeration economies are framed within the industrial, temporal and geographical scope. Thus, depending of the type of industry or service, and of their needs for being competitive, these scopes vary. The ILC explains the relation between the industry's different life stages and how it benefits from agglomeration economies in each of them. Finally, lock-in helps to analyze the behavior of firms (relational and institutional perspectives) in order to explain the evolution of industries in mature periods.

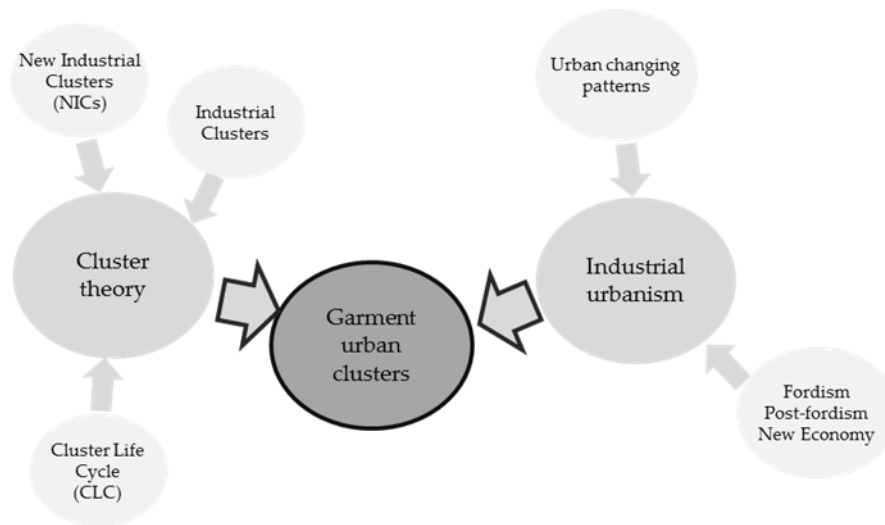
Despite the usefulness of the three concepts, the literature review has detected a set of gaps. In the case of agglomeration economies, the emergence of CWs denotes the requirement of a view related to the importance of the intra-urban and micro-urban scales for the study of, for instance, the creation of knowledge spillovers. In the case of ILC, the analysis of the evolution of industries leaves aside its spatial consequences. The different responses of firms within a same industry to different shocks entail the creation of multi-paths, which cause consequences in the territory. In the same vein, the lock-in concept centers in the capacity of response of firms, in particular, and industries, in general, to different challenges. However, the spatial consequences have not been analyzed deeply. Therefore, the interrelation of the three concepts aids to build an enriching theoretical approach in order to understand the configuration and evolution of urban economic spaces.

CHAPTER 3 URBAN ECONOMIC CLUSTERS IN CONTEMPORARY CITIES

The previous chapter has highlighted the importance of agglomeration economies over time in the configuration and evolution of economic spaces. This chapter takes a step forward and focuses on the emergence of clusters in cities and, particularly, on urban garment clusters. The analysis of urban garment clusters is a valuable topic because it comprises the previous-reviewed concepts in chapter 2 (in this case we take garment clusters as an urban economic space) and aids understanding of cities' economic dynamics at an intra-urban scale. Nevertheless, garment urban clusters have received little attention in the economic geography literature, with some remarkable exceptions (Helfgott, 1959; Kim, *et al.*, 2004; Montagné-Villette, 1990; Rantisi, 2001, 2002, 2004).

In order to build a theoretical framework to understand the evolution of garment clusters and their relationship with urban economic dynamics, it is necessary to bring up three key concepts (Figure 3.1). The first concept is cluster. There is a wide range of models in the economic geography literature focused on the spatial concentration of firms and their dynamics, including (neo-)industrial districts (Becattini, 1989, 2006; Markusen, 1996), innovative milieus (Aydalot, 1986; Crevoisier, 2004), regional innovation systems (Cooke, 2001), learning regions (Morgan, 1997), new industrial spaces (Saxenian, 1994; Scott, 1988a) and industrial clusters (Porter, 1990) among others. Despite their similarities and differences (Maillat, 1998; Trippl & Bergman, 2014), they mainly share the search for innovation tools that might increase a firm's competitiveness (Maskell & Malmberg, 2002). Regardless of criticisms that the cluster concept is 'fuzzy' (Martin & Sunley, 2003), we argue that the cluster notion adjusts more effectively to the case study owing to its geographical flexibility (Trippl & Bergman, 2014), enabling us to analyze productive concentrations at intra-urban and even micro-urban scales.

Figure 3.1 Theoretical concepts in the analysis of garment urban clusters



Source: own elaboration.

The second concept is industrial urbanism (Hall, 2000; Hutton, 2008; Landry, 2008; Scott, 2011a). Discourses about industrial urbanism help shed light on the relationship between productive systems and urban dynamics in 21st-century cities.

3.1 Configuration and evolution of clusters

In the 1990s, the concept of the cluster was popularized by Michael Porter's influential book *The competitive advantage of nations* (1990). The main aim of his book was to understand both the specialized geographic concentration of industries and their influence in economic development. The notion of a cluster is defined as

“a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities. The geographic scope of a cluster related to the distance over which informational, transactional, incentive and other efficiencies occur.” (Porter, 2000: 16)

The Porterian cluster theory is based on two concepts: competitive advantage and the value chain (Porter, 1990, 2001). A competitive advantage refers to those factors that

provide an added value to the final product. Thus, the competitive advantage is based on the degree of the firm's innovation, mirrored in

“product changes, process changes, new approaches to marketing, new forms of distribution and new conceptions of scope.” (Porter, 1990: 45)

The value chain is formed by all of the activities that develop the firm. Through examining the value chain, the firm is able to understand its cost structure and catalyze improvements that aid in increasing its competitiveness. However, a firm is also reliant on an optimal environment, constituted of a set of external actors and factors that condition the value chain of each firm. All of these configure the sources of a firm's competitiveness and result in the so-called *Porter's diamond*. The model is composed of (Porter, 1990): 1) factor conditions (factors of production); 2) demand conditions (the sort of demand markets); 3) related and supporting industries (supplier industries) and firm strategy, structure and rivalry (institutional thickness and market structure).

The *Porter's diamond* underscores competence as being the source of competitiveness. Competitors pressurise each other to improve their products, enhancing and creating competitive advantages (Porter, 1990). However, little attention is paid to cooperation (Trippel and Bergman, 2014). Although Porter (1998, 2000) argues that cooperation and competition must coexist, he states that cooperation between competitors is less beneficial than with suppliers. The reason lies in the fact that cooperation undermines competitive advantages by eliminating diversity, weakening incentives and jeopardizing an industry's improvement (Porter 1990).

The literature depicts a wide array of clusters. In the case of industrial clusters, some authors have built a specific classification in relation to the kinds of transactions between firms (Iammarino & McCann, 2006). There are three types: pure agglomeration, industrial complex and social network. The former is characterized by the grouping of small firms generally located in urban environments, without the power to control market prices and selling similar products (monopolistic competence). In these clusters, the barriers to entry are related to local land rents. In contrast, in industrial complex clusters firms establish long-term relations with one another based on transactions in order to minimize transport costs. Iammarino and

McCann (2006) note that this type of cluster is commonly related to mature industries and comprises regional and local spaces rather than urban environments. Finally, social networks refer to those industrial clusters that are also located in regional and local spaces and are based on mutual trust relations between agents, which are as important as hierarchical relations. Although it is impossible to find clusters that precisely fit this classification (Martin & Sunley, 2003), Iammarino and McCann (2006) acknowledge that they may contain different characteristics from the three models, but “one type will tend to be dominant in each cluster” (pp. 1023).

Besides the industrial perspective, services also tend to cluster spatially. The first studies were developed in the late 1990s and the beginning of the current century, focusing on activities such as consultancies (Bennett *et al.*, 1999; Keeble & Nachum, 2001). However, throughout the 21st century, the study of advanced service clusters has come to the foreground at the same time as the importance of knowledge, creativity and/or culture in local development has increased. Thus, knowledge-(based) clusters, creative clusters or culture clusters are concepts that embrace activities strongly based on highly skilled workers and the intensive use of ICT, such as media-based firms, advertising, design, architecture, consultancies and ICT-related activities (Bathelt & Boggs, 2003; Bennett *et al.*, 1999; Bramwell & Nelles, 2005; Branzanti, 2015; Chapain *et al.*, 2010; De Propriis, *et al.*, 2009; Gong & Hassink, 2017; Heebels & Van Aalst, 2010; Isaksen, 2004; Keeble & Nachum, 2001; Komorowski, 2017; Lazzeretti *et al.*, 2009; Mommaas, 2004; Perrons, 2004; Picard, 2008). Nevertheless, Hutton (2008) has proposed a cluster classification centered on the mix of production regimes (pre-Fordist, Fordist and post-Fordist), termed NICs. His proposition was influenced by both a post-modernism-based urban planning ideology⁵ and an array of economic and urban models and concepts that explain economic dynamics in cities, such as industrial districts, creative cities or the cognitive-cultural economy (Hall, 2000; Markusen, 1996; Scott, 2007, 2011a). Hutton’s aim is to understand new patterns of industrial urbanism in the NE (particularly after the collapse of the *dot.coms*) and the spatial imprint of their activities (knowledge, creativity, cultural and ICT) at an intra-urban scale. This new

⁵ From an urban planning viewpoint, Hutton (2004a) refers post-modernism as “the conventional meaning of an acknowledgement of diversity, pluralism, complexity and ambiguity in urban form and land use patterns, with a corresponding rejection of hegemonic tendencies and tastes” (pp. 1955)

scale of analysis sheds light on economic dynamics within 21st-century cities. In the configuration of NICs, Hutton also pays special attention to other factors, such as historical contingencies (Barnes & Hutton, 2009), the role of the built environment (consumption, cultural and environmental amenities) and urban specificities (Hutton, 2006). In short, Hutton utilizes the above characteristics to configure a typology of NICs.

On analyzing Hutton's (2004, 2008) cluster classification, no mention is made of CWs because they were not yet an emerging phenomenon. However, the ongoing fragmentation and decreasing security of labor markets (Asheim & Clark, 2001), the increasing use of ICT and the growing importance of knowledge has necessitated a reinterpretation of the cluster concept, especially its spatial dimensions. CWs have come to fill the vacuum of freelancers' isolation as well as small firms framed in the knowledge, creative and cultural field. Their need for labor and social interactions pushes them to seek new spaces that enable the weaving of socioeconomic networks. In sum, firms and entrepreneurs (co-workers) mainly look for the following requirements (Cabral & Winden, 2016; Capdevila, 2013; Stam & van de Vrande, 2017; Weijs-Perrée *et al.*, 2019): 1) the building of spontaneous linkages with other co-workers; 2) the transference of knowledge, information and trust; 3) to benefit from the support of the CWs' organizational platform; and 4) to gain new knowledge through events, seminars organized by the CW, co-workers or external agents. The interaction of co-workers inside a particular space that allows for the development of a knowledge-based network means that CWs should be considered as microclusters (Capdevila, 2013), with co-workers benefiting from agglomeration economies at a micro-urban scale.

Although some authors are progressively focusing on the characteristics of CWs, the locations in cities and, in a lesser degree, their economic consequences in inner urban areas (Capdevila, 2013, 2015, 2017; Coll-Martínez, 2019; Constantinescu & Devisch, 2018; Fiorentino, 2019; Mariotti, Pacchi, & Di Vita, 2017; Ondia, Hengrasmee, & Chansomsak, 2018), it remains an unexplored topic in the economic geography literature and particularly in cluster theory.

3.1.1 The role of linkages in the creation of competitive advantages

The relations between firms in the Porterian cluster theory are based on horizontal and vertical linkages (Porter, 1990). Horizontal linkages constitute those relations between firms that compete to offer similar products. In contrast, vertical linkages refer to those between different industries constituting buyer-supplier relations. Porter (1990) stresses that competitive advantages stem from both competition between firms (horizontal dimension), stimulating innovation, and the optimal coordination between suppliers and buyers (vertical dimension) in order to reduce costs. While Porter acknowledges the role of knowledge spillovers in the creation of competitive advantages, his theory is largely based on cost savings through I-O relations, entirely related to industrial clusters:

“On-time delivery requires that operations, outbound logistics, and service activities should function smoothly together (...) Coordinating linked activities is also an important way to reduce the combined time required to perform them, increasingly important to competitive advantage.” (Porter, 1990: 42)

In contrast to Porter’s traditional agglomeration economies perspective, Peter Maskell has proposed viewing knowledge as the main driver in the configuration and evolution of clusters. This perspective conforms to a knowledge-based theory of cluster development (Maskell, 2001). Focusing on horizontal linkages, in some cases actors within a cluster do not interact with one another, but remain in the cluster in order to benefit from the spatial concentration of firms. Maskell and Malmberg (2002) stress that the simple fact of being close to competitors enables firms to monitor each other. This process enhances knowledge and learning exchange through “*watching, discussing and comparing dissimilar solutions*” (Maskell and Malmberg, 2002: 12). Focusing on the vertical dimension, the specialization of firms within the productive chain causes knowledge flows through buyer-seller linkages. Nevertheless, Maskell and Malmberg (2002) warn of an excess of a firm’s productive specialization. On the one hand, overspecialization may see firms become suppliers, and so knowledge spillovers through monitoring (horizontal dimension) decline. However, an ongoing productive

specialization may result in the acquisition of new knowledge that can be positively exchanged with pre-existent knowledge of the cluster's actors. On the other hand, the persistent increase in specialization may cause the distance between both forms of knowledge to differ to such an extent that it causes a misunderstanding between the two actors. Therefore, knowledge exchange not only depends on geographical proximity but also on cognitive proximity (Boschma, 2005; Gertler, 2003; Rantisi, 2014). Cognitive proximity helps shape tacit knowledge due to the existence of common routines, rules and habits between firms. Thus, the creation of a common language and understanding of the mechanisms that leads to the development of a cluster is termed *local buzz* (Bathelt *et al.*, 2004; Storper & Venables, 2004).

Buzz refers to “the network of communication and information linkages, which develop within a cluster” (Bathelt *et al.*, 2004: 38), based on F2F contacts through formal and informal meetings. The *buzz* enables knowledge exchange to flow fluently between actors within the cluster. However, clusters, and particularly firms, are not isolated entities, but rather are globally connected. This situation may cause firms to connect with external actors from the cluster, consolidating codified-knowledge exchange channels called *global pipelines* (Bathelt, 2004). The configuration of global pipelines to access external knowledge is “necessary to make clusters work” (Bathelt, 2008: 90), creating in turn new knowledge within the cluster. This situation becomes a competitive advantage, allowing firms to benefit from knowledge from different external sources. In sum, this approach reflects a more open system than Porter's model and also allows clusters to be framed within a global hierarchical context, thereby moving analysis of knowledge creation linkages towards a local-global perspective.

While the above-mentioned theory is focused on firms as actors in the creation of *local buzz* and the introduction of non-local knowledge, a set of local institutions also act as drivers in that process. A first case is associational institutions. They provide intra-linkages between the different actors within the cluster (Rantisi, 2004) or introduce knowledge from proximal industries, termed *local pipelines* (Rantisi, 2014). Second, some authors stress the importance of universities (Bergman, 2008 citing Beets and Lee, 2004; Goldstein and Renault, 2004). These stimulate local buzz through the incorporation of bachelors with new knowledge (Bramwell & Nelles, 2005), help

develop spinoffs (Benneworth & Hospers, 2007; Bramwell & Nelles, 2005) and attract non-local knowledge and investment devoted to the development of regional and local projects (Benneworth & Hospers, 2007; Huggins *et al.*, 2012).

3.1.2 Cluster life cycle: an approach to understanding the spatial multi-paths of ILC

As mentioned in the previous chapter, the ILC theory lacks a geographical perspective to understand spatial imprints in relation to the evolution of industries.⁶ However, one way in which this gap might be approached is through the analysis of the evolution of clusters via the CLC (Bergman, 2008; Crespo, 2014; Lorenzen, 2005; Menzel & Fornahl, 2010; van Klink & de Langen, 2001). Although some authors have proposed alternative classifications to analyze the different stages of CLC (i.e. Brenner, 2004; Menzel & Fornahl, 2010), we suggest that Bergman's (2008) proposition is the closest approximation in terms of comparison to the stages of the ILC (Table 3.1).

In the existence phase, Bergman (2008) reviews a set of causes that act as pre-existence sparks in the configuration of clusters. These causes are: the pre-existing milieu formed by community values, cooperation and social capital; historical events and vestiges regarding the configuration of specialized clusters (Krugman, 1991; Rantisi, 2004); the existence of a large demand market that causes a cluster's growth; and the pre-existence of Marshallian locational economies. All of these causes may shed light on the initial causes of the creation of clusters, although they do not explain them fully, hence the issue continues to represent a black box (Maskell & Malmberg, 2007).

The expansion phase is characterized by a rapid increase in the number of firms within the cluster, and may be subclassified into exploratory and exploitative sub-phases. In the exploratory phase, firms take advantage of initial agglomeration economies due to the presence of anchor tenants (Carli & Morrison, 2018), external agents or leader suppliers (Maggioni, 2004). On the other hand, solid trust and common rules and understanding between firms enable the development of tacit knowledge, allowing knowledge and information to flow more fluently owing to cost reductions. However,

⁶ 2.3 Agglomeration economies, industry life cycle and urban spatial organization.

Table 3.1 Characteristics in each stage in the cluster life cycle (CLC)

Phases	Features	Causes
Existence	First sparks in the development of clusters	<ul style="list-style-type: none"> • Marshallian locational economies (Peter Maskell & Kebir, 2005) • Pre-existing community values, cooperation and social capital (Camagni, 1995) • Historical events (Krugman, 1991) • Spin-offs (Klepper, 2007) • Increments in demand (Brenner, 2004)
Expansion	Critical growth of firms in the cluster	
Exploratory	Exuberant exploration of how initial pecuniary spillovers originating within clusters might be incorporated into successful business models	<ul style="list-style-type: none"> • Presence of external agents, anchor tenants and leader-suppliers (Maggioni, 2004) • Multi-form proximities (Boschma, 2005) • Institutional actors (E. Bergman, 2006; Bramwell & Nelles, 2005)
Exploitative	Success is easy in this phase. Little pressure exists to search for further development of the cluster's strengths. First signals of rigidity of cluster internal structures	<ul style="list-style-type: none"> • Development of "isolating mechanisms" (Peter Maskell & Malmberg, 1999) • Congestion costs (Maskell & Kebir, 2005; Swann, 2002)
Exhaustion	Maturity entails a threat to continue the cluster viability	
Lock-in	Inwardly-spiralled layering of events that steadily shrink clusters	<ul style="list-style-type: none"> • Cognitive, technical and political (Cho & Hassink, 2009; Grabher, 1993; Hudson, 2005)
Reinassance	Marked shock for cluster's renewal	<ul style="list-style-type: none"> • Agent diversity (Bathelt <i>et al.</i>, 2004; Rantisi, 2002) • Polyvalent technology sources (Hassink, 2007) • Science knowledge base (Benneworth & Hospers, 2007; Betts & Lee, 2004; Bramwell & Nelles, 2005)

Source: own elaboration adapted from Bergman, 2008.

Boschma (2005a) states that for the creation of tacit knowledge it is necessary to consider multiple proximities (cognitive, organizational, social, institutional and geographical). Finally, the presence of institutional agents may help generate synergies between firms within the cluster or allow it to expand its networks, stimulating positive development (Bergman, 2006; Bramwell and Nelles, 2005). In the exploitative stage, the first problems may appear that will eventually lead to decline. Maskell and Malmberg (1999) stress the role of “isolating mechanisms” in the pre-decline of the cluster. “Isolating mechanisms” refer to those initial advantages that aided the configuration and self-reproduction of the cluster. However, the lack of external stimulus to renovate the cluster converts those previous positive advantages to disadvantages. This progression results in a pre-lock-in situation.

The exhaustion phase refers to this state, where the number of firms decreases and thus in turn the density of the cluster’s network. This process reduces both the number of nodes and the knowledge and information flows (Bergman, 2008 citing Tichy, 1998). Within the exhaustion phase, we may differentiate between lock-in and renaissance sub-phases. The former refers to the situation where the cluster gradually declines because of the non-existence of renewal mechanisms.⁷ The renaissance phase refers to marked transitions that allow clusters to renew. Some instances refer to the total renew of clusters such as Silicon Valley from semiconductor to high-tech industries (Saxenian, 1994), the accordion cluster in Marche (Italy), which moved from traditional instruments to electronic ones (Tappi, 2005), and the coal and steel cluster in the Ruhrgebiet (Germany), which transformed into environmental technologies (Grabher, 1993).

The CLC also sheds light on the dynamics of clusters and aids in understanding the spatial consequences of the multi-paths derived from the evolution of an industry. As Maggioni (2004) has argued, the emergence of new technologies causes a disruption within the industry, affecting existing mature clusters based on previous technologies, in turn creating new clusters (Crespo, 2014). Given that the evolution of industries and clusters is thus dissimilar (Menzel & Fornahl, 2010; Wang *et al.*, 2014), the CLC

⁷ A review of the mechanisms that enhance the lock-in are explained in 2.4.2 *Lock-in as an explanatory concept in the evolution of industries.*

embraces not only an industrial perspective (ILC theory), but also geographical and relational viewpoints (Crespo, 2011). On the other hand, Menzel and Fornahl (2010) highlight how focusing on the firm level is essential to understanding clusters' evolution. This viewpoint aids in understanding the dynamics of firms' capacity to acquire new innovations, (un-)traded relations or knowledge exchange. Therefore, this outlook follows an evolutionary viewpoint (Belussi & Sedita, 2009) and would help explain the different spatial trajectories of a cluster.

The empirical literature on CLC is recent and scarce. However, some case studies provide evidence as to the evolution of clusters and convergence with the assumptions of EEG. The first evidence is that the evolution of clusters is a path-dependent process. One instance is the hosiery cluster in Castel Goffredo (Italy) (Carli & Morrison, 2018). The decline of the anchor firm NOEMI caused the emergence of spinoffs managed by former workers, who adopted knowledge from the incumbent firm. In the same line, Shin and Hassink (2011) have stressed that the emergence of the shipbuilding cluster in South Korea is related to new technologies from Japan. The second piece of evidence is that drivers of agglomeration economies change over the life cycle of clusters. An example is the Ontario wine industry (Wang *et al.*, 2014). In the growth phase, the advantages of co-location (localization economies) help firms to enter the cluster. However, in the mature phase, co-location helps firms survive (Crespo, 2014).

Overall, the theoretical and empirical literature of CLC highlights five facts. First, the CLC contributes to a thorough understanding of evolution of industries. Second, clusters may take multiple path-dependent trajectories, highlighting that they do not follow a linear path (Carli and Morrison, 2018). Third, the evolution of clusters responds to multi-scalar dynamics (Santner & Fornahl, 2014). Fourth, the literature on CLC is largely focused on industrial clusters rather than service-based clusters. Finally, CLC has prioritized the regional scales, putting aside case studies at the urban scale. As we have already stressed, focusing on the urban (and especially intra-urban) level would enable the CLC to contribute in two ways to the literature on the evolution of clusters. First, it would help us understand the economic dynamics of 21st-century cities and why some urban clusters prevail while others do not. Second, it would complement the CLC with a geographical urban context.

3.2 Clusters in urban contexts

3.2.1 From the Fordist to the post-industrial city

The Fordist era refers to the period from the beginning of the 20th century until approximately the 1970s. The Fordist production system is based on the search for internal economies of scale through the organization of production associated with the assembly line. This organization entailed the fragmentation of the productive process and, consequently, a technical division of labor (Scott, 1988a). The most important sectors in this period were those based on industry (automobile, iron and steel, textile, etc.), which were oriented to a standardized system of production in order to supply mass markets.

Cities in the Fordist economy were optimal spaces owing to the location of a set of essential factors such as transport accessibility, the availability of labor pools and the location of demand markets. Consequently, different industrial urban neighborhoods emerged. In American cities, industrial and trade-related activities (mainly wholesaling) became located around the central cities or in peripheral urban areas, while the central city became associated with service-based activities and retail trade (Harris & Ullman, 1941; Helfgott, 1959; Lichtenberg, 1960; Moses & Williamson, 1967; Pred, 1964; Steed, 1973). Few studies have focused on this topic in European cities, although London is a well-known exception. Martin (1964) has exposed the industrial spatial patterns in urban environments at the end of the Fordist period, highlighting the location of light manufacturing and trade at the edge of the central city (clothing, printing, furniture, jewelry). In contrast, engineering-related and perishable product-based industries settled on peripheral plots and close to ports (Hutton, 2008). These industrial concentrations produced industrial districts constituted of a variegated set of ancillary firms. In the case of Amsterdam, Dieleman and Jobse (1974) have highlighted the location of light manufacturing in both areas adjacent to the center and on the fringes of the city, while heavy industries centered around the port.

From the 1970s the Fordist system collapsed, causing not only the emergence of a post-Fordist era, which lasted until the beginning of the 1990s (approximately), but also an

urban and metropolitan economic restructuring (Lever, 2001). According to Scott (1988b), the consequences from a productive organizational viewpoint are characterized on the one hand by the substitution of internal economies of scale to external economies owing to the vertical disintegration of the firm's value chain. On the other hand, the high segmentation of the demand implied focusing on differentiation as the main competitive advantage in expenses of costs reduction. Both features are derived from a more flexible production system (Piore & Sabel, 1984), causing the fragmentation of the value chain. In a broad context, post-Fordism entailed the spatial division of the organization of labor and production (Massey, 1984). Those clerical-based functions (design, management, innovation, research, etc.) remained in developed countries' cities, where highly skilled labor (white-collar workers) was located. In contrast, firms tended to outsource production tasks to peripheral plots or to developing countries (i.e. South-East Asia), where land rents and labor costs were lower, respectively. This global economic restructuring process had particular imprints in cities. Western cities experienced a profound deindustrialization process that saw both the emergence of large pools of unemployment (Massey, 1982) and the deterioration of formerly industrial intra-urban spaces. As Hutton (2008) has argued, industrial restructuring was not only a crisis of Fordism, but also a "*general manufacturing decline of the metropolis*" (pp. 21). Therefore, the economic structure of European and American cities moved towards a service-based economy. Thus, the growth of advanced producer services stems from the organizational restructuring of manufacturing firms (Evans, 1973; Krätke, 2015).

The urban spatiality of post-Fordism translated into the clustering of offices in so-called central business districts (CBD). CBDs were considered as the core business centers, comprising the headquarters of industrial firms, advertising, consultancy, lawyers and so forth. CBDs' main area of appeal to firms was the location of clients, as F2F contact was easy and enabled responding to unpredictable and unstandardized problems (Evans, 1973 citing Lichtenberg, 1960). However, the main barrier to entering these urban spaces was the rent, forcing less competitive firms to the periphery (Clapp, 1980). On the other hand, the edge of the CBD, which comprised former manufacturing

spaces, became disinvestment and deindustrialization spaces that attracted communities of artists owing to their low rents (Hutton, 2008).

3.2.2 From the post-Fordism to the new economy city

Some previous remarks about the new economy

The NE has become a fuzzy concept (Asheim & Clark, 2001), but akin to Fordism and post-Fordism it is associated with a particular period of time and production organization. In relation to the former, Hutton (2008) has stated that NE “*constitute new forms of post-fordism*” (pp.4). However, other authors have stressed a break in the 1990s with the strong adoption of neoliberal policies (Soete, 2003). In addition, NE also frames other historical landmarks such as the fall of the Berlin’s Wall, the ongoing reduction in the cost of communication technologies, the increase in knowledge-based goods or new forms of working and the insecurity of work (Perrons, 2004). In relation to productive issues, Hutton (2008) has presented a set of common attributes that constitute NE-based activities, such as: 1) the importance of cultural and technological factors; 2) the intense relationship between manufacturing and services in the manufacture of high-value cultural products; 3) the interaction of consumption and production; 4) the relationship between art and culture; and 5) the combination of local and external (due to ICT) inputs. On the other hand, dissociating from the more technological side of the concept, some authors have proposed that creative and cultural industries are explanatory forms of the NE in cities (Currid-Halkett & Williams, 2010a; OECD, 2005). Creative industries are those “*based on creativity, skill and talent (...) developing and exploiting intellectual property*” (De Propris *et al.*, 2009 citing DMCS, 1998), while cultural industries are “*involved in the production of social meaning in the form of texts and symbols*” (Markusen *et al.*, 2008 citing Hesmondhalgh, 2002). Both industries share common features such as the aesthetization of products, the importance of intangible inputs, the employment of highly skilled workers or the flexibility of the production process. Thus, the frontier of both industries is rather blurred and tends to be overlapping (Ho, 2009; OECD, 2005).

The above-mentioned industries share a common denominator: the importance and intensive use of knowledge. Thus, some authors stress this as the basic input in the development of the activity while excluding creativity, art and culture. They are knowledge-intensive businesses (KIS) and knowledge-intensive business services (KIBS). The difference between them lies in how knowledge is created and reproduced. In the case of KIS, knowledge is both the main production factor and the outcome (Schricke *et al.*, 2012). These are activities related to high-tech, market and financial services. Some authors have also called them knowledge-based services (Méndez & Sánchez Moral, 2011). In contrast, KIBS obtain knowledge through a more intensive form of interaction with costumers (Schricke *et al.*, 2012). KIBS are those activities related to computer services, research, architecture, advertising, among others (Hipp, 1999; Simmie, 2010). As creative and cultural industries, the added value of KIBS products is highly contingent on their symbolic knowledge (Strambach, 2008). However, what activities may be considered within the NE? Table 3.2 intends to gather some remarks. Hutton (2008) classifies NE-based activities between technology-based industries (communication consultants, computer software design, etc.) and technology-intensive creative industries (advertising, fashion design, etc.). On the other hand, creative and cultural industries tend to share the same economic activities related to liberal professions, entertainment and craft- and design-based activities (Bryan *et al.*, 2000; Department of Culture Media and Sport, 2001; Hall, 2000; Lazzeretti *et al.*, 2009; Lazzeretti *et al.*, 2016; Martin-Brelot *et al.*, 2008; Méndez *et al.*, 2012; Power, 2002; Pratt, 1997; Scott, 2008; Wetzels, 2007). Finally, KIS and KIBS focus on those activities that provide services to other firms (computer and related services, financial services, computer services, technical services, etc.) (Hipp, 1999; Méndez & Sánchez Moral, 2011; Schricke *et al.*, 2012; Simmie, 2010).

Table 3.2 Literature review about economic activities framed in the NE

Concept	Authors	Economic activities	
Technology-based industries	Hutton (2008)	1. Technology-based industries:	2. Technology-intensive creative industries:
Technology-intensive creative industries		<ul style="list-style-type: none"> • communications consultants • computer software design • computer graphics and imaging • computer networking • Internet services 	<ul style="list-style-type: none"> • advertising • architecture • fashion design, graphic artists and designers • industrial design • film and video production and postproduction • Print media
Creative industries	(Department of Culture Media and Sport, 2001; Lazzeretti <i>et al.</i> , 2009, 2016; Martin-Brelot <i>et al.</i> , 2008; Ricardo Méndez <i>et al.</i> , 2012)	<ul style="list-style-type: none"> • Advertising • Art and antiques market • Design • Architecture • Craft-related activities • Designer fashion • Film 	<ul style="list-style-type: none"> • Interactive Leisure software • Music • Performing arts • Publishing • Software • Television and radio • Computer games
Cultural industries	Bryan <i>et al.</i> (2000); Hall (2000); Power (2002); Pratt (1997); Scott (2011b); Wetzels (2007)	<ul style="list-style-type: none"> • Printing and publishing • Industries allied to printing • Computer services • Film • Radio and television • Craft-based activities 	<ul style="list-style-type: none"> • Entertainment • Liberal, artistic and literary professions • Libraries, museums, etc. • Advertising • Design-based activities
Knowledge business services (KIS)	Méndez & Sánchez Moral (2011); Schricke <i>et al.</i> (2012)	1. High-tech services:	3. Financial services:
Knowledge-based services		<ul style="list-style-type: none"> • Post and telecommunications • Computer and related services • Research and development 	<ul style="list-style-type: none"> • Financial services • Insurance and pension funding • Activities auxiliary to financial services
		2. Market services:	4. Other:
		<ul style="list-style-type: none"> • Water services • Air transport • Real estate services • Other business activities 	<ul style="list-style-type: none"> • Education • Health and social work • Recreational, cultural and sporting activities
Knowledge-intensive business services (KIBS)	Hipp, (1999); Schricke <i>et al.</i> (2012b); Simmie (2010)	<ul style="list-style-type: none"> • Computer services • Research and development • Legal, tax, consultancy services • Architecture and engineering 	<ul style="list-style-type: none"> • Technical services • Advertising • Medical services

Source: own elaboration

New economy productive system and cities: urban spatial patterns

Drawing urban geographical patterns of NE firms is complex because they respond to different requirements. However, the common attribute that characterises them is the ongoing importance of different forms of knowledge in the added value of their products. This feature has a direct translation in the location of firms within cities. But what benefits do NE firms find in cities? NE firms are strongly related to the need to respond rapidly to volatile demand markets and to search for new ways of product differentiation. Although NE firms are based on the intensive use of ICT, enabling them to access both external knowledge and global demand markets, they prefer to locate in cities in order to benefit from urban innovative milieus (Brail & Gertler, 1999; Darchen & Tremblay, 2015; Hall, 1996; Hutton, 2008; Isaksen, 2004). Focusing for instance on cultural and creative industries, their location in cities is a response to a set of factors (Hutton, 2004; Scott, 1997, 2007; Lazzeretti, *et al.*, 2009; Gong and Hassink, 2017). First, they are increasingly dependent on highly skilled workers (human capital). Some cities may become poles of attraction of a variegated, highly-educated workforce. Florida (2002) has stated that those cities that embody the 3 T's (technology, talent and tolerance) are most likely to attract highly-skilled and creative workers, termed the "creative class." Second is the advantage of proximity to similar or complementary firms (agglomeration economies). Some NE industries are characterized by a Marshallian productive organization (e.g. the film industry and fashion design). The co-location of similar or complementary firms aids the easy exchange of knowledge, labor and inputs and outputs (Rantisi, 2002; Scott, 1997, 2011b; Williams & Currid-Halkett, 2011). In contrast, the concentration of a large range of variegated economic activities also attracts other NE firms (i.e. software, advertising) that supply a wider range of demand markets. Through both previous situations, tacit knowledge emerges, enabling the configuration of a local *buzz* based on trust and formal and informal channels of knowledge and information. Third is to benefit from NE-oriented public policies (institutional thickness). Fourth is the cultural value of cities (aesthetic and semiotic content). Competition to differentiate one's products from others' is increasingly complicated. One strategy is the commodification of intangible and place-

specific values, which are embedded in final products. In this way, certain products are directly related to certain cities, providing them with non-transferable values such as Hollywood films or Paris *haute couture* (Scott, 1997, 2011b). Sixth are other factors characterized as hard and soft factors (Bontje & Musterd, 2008). Hard factors refer to those urban features related to facilities to develop the economic activity of firms (office rents and availability, accessibility or presence of business services). Soft factors concern those standards of living such as the quality of health and educational services or the availability and quality of the housing stock.

When focusing on intra-urban plots, NE firms do not locate homogeneously. Former industrial spaces, which declined in the post-Fordist era, experienced a revitalization, causing the productive “reassertion” of inner urban areas (Hutton, 2008). Their lower rents enabled incipient firms to progressively settle and configure knowledge-, creative- and cultural-based clusters (Armondi & Di Vita, 2018; Barnes & Hutton, 2009; Casellas & Pallares-Barbera, 2009; Currid-Halkett & Williams, 2010b; Dot Jutgla, 2015; Evans, 2009; Heebels & Van Aalst, 2010; Hutton, 2008; Isaksen, 2004; Krätke, 2015; Pratt, 2009; Scott, 1997). In some cases the productive “reassertion” of these urban spaces has been launched by revitalization policies (top-down) (Casellas & Pallares-Barbera, 2009; Evans, 2009; Mommaas, 2004; Scott, 2007) that carry out gentrification processes (Dot Jutgla, 2015; Hutton, 2008). In contrast, some NE-based clusters are driven by market-driven processes (bottom-up) (Pratt, 2000). Overall, in the words of Thomas Hutton (2008), the spatial concentration of NE firms leads inner urban areas to

“take the form of a ‘hybridized’ structure of cultural production, creative labor, and technology; comprise a complex mix of ‘new’ and ‘old’ economy industrial regimes; and present a rich and diverse array of production, exchange, circulation, and consumption: a ‘recombinant’ structure of economic activity in the heart of the twenty-first-century city.” (pp. XIV)

3.3 Urban garment clusters: an under-researched issue in the economic geography literature

3.3.1 Changing patterns in textile and clothing manufacturing and distribution: an economic-spatial synthesis

Textile and clothing manufacturing and the garment trade involved a set of interrelated economic activities, in accordance with the entire value chain of a clothing item. In order to understand the production and distribution process, an overview of the organizational and spatial patterns of the economic activities is required.

The production system of both textiles and clothing comprises several stages. The textile industry can be divided into five processes: preparation of natural fibers, spinning, weaving, finishing and printing. The whole production process may be carried out by single large firms (vertical-integrated) or by a group of several small ones (flexible specialization). In the case of clothing manufacturing, the production organization can prove even more fragmented by including designing, cutting, sewing, pressing, packing and other processes. These tasks can also be further subdivided into smaller operations. From the 1980s until the present day, both the textile and clothing industries have scattered their production factors around the world, causing the uneven concentration of production, labor and incomes (Massey, 1984).

With the aim of understanding the contemporary spatial patterns of both industries, we must take into account the evolution of their productive organization from the 20th century until the present. Although until the middle of 20th century the textile industry was concentrated in large vertical-integrated factories, in the post-Fordist period its productive organization totally changed. From the 1960s until the 1980s, the oil crises, the collapse of the Fordism, the defragmentation of demand markets and the competition provided by newly industrializing countries (mainly in Southeast Asia and Latin America) created two important situations. First, industrial restructuring processes in order to adapt to the new economic global order (Benneworth & Hospers, 2007; Dicken, 1992). The consequences of this were: 1) the transformation of the textile industry from a labor-intensive to a capital-intensive industry (Hassink, 2007); 2) a

dramatic decrease in employment in industrialized countries (Massey, 1982; Scott, 2006); 3) the intensification of the outsourcing of production processes (Dicken, 1992); and 4) the development of new textile products and increased openness to more specialized demand markets (e.g. medical, automobiles, sport, housing) (COPCA, 2007; Hassink, 2007; Van Geenhuizen & Van der Knaap, 1994). Second, from a global trade viewpoint, developed countries through the World Trade Organization (WTO) established trade agreements in order to restrict imports from developing countries. For instance, the Multifiber Agreement (MFA) (1973)

“was a framework for bilateral agreements or unilateral actions that established quotas limiting imports into countries whose domestic industries were facing serious damage from rapidly increasing imports.” (World Trade Organization, 2018)

The trade agreements continued into the 1990s, the MFA being substituted by the Agreement of Textile and Clothing (ATC) (1995). The aim of the ATC was also to progressively reduce imports until their elimination in 2005 (World Trade Organization, 2019). These global trade agreements also affected the clothing industry, but more intensively. The clothing industry has always been a traditionally labor-intensive industry, where subcontracting is more intense than in the textile industry and where the implementation of technology is complex. Consequently, the move towards a capital-intensive industry based on technology as an upgrading process is rather difficult, with some exceptions such as the development of computer-aided design (CAD) (ACTE, 1998; Costa & Duch, 2005; Scarso, 1997). Therefore, to negotiate the high degree of segmentation and instability of demand markets and the competition of developing countries (Scott, 2002), the clothing industry developed two different strategies in order to remain competitive. The first strategy concerned the cost-reduction process. Basing competitive advantages on the reduction of costs is related to a mass-standardized production process and is highly focused on labor. Large and multi-plant clothing firms tend to outsource those production processes that required low-skilled labor to developing countries, where labor costs are lower (Southeast Asia, North Africa, Eastern Europe or the Eastern Mediterranean). However, high-value processes (management, design, R&D) settle in developed

countries, where highly skilled labor can be found (Doyran, 2013; Massey, 1984; Yamamura *et al.*, 2003). The second strategy concerns differentiation. In this case, the competitive advantage of firms based is mainly based on design. The move towards a design- and knowledge-based activity underlies the search for unique products as a differentiation strategy. This strategy helped transform the industry from ready-to-wear to fashion products (Rantisi, 2004; Scott, 2002). In contrast to a standardized clothing market, the fashion industry was to respond quickly to the demand markets' needs through a continuous replenishment of stocks (Tokatli & Kizilgün, 2009). Therefore, owing to the short product life cycle of clothing, the fashion industry (Azuma, 2002; Doeringer & Crean, 2006; Scarso, 1997; Scott, 2002; Tokatli & Kizilgün, 2009) implies: first, multi-scalar flexible supply networks; second, the strongly implantation of ICT within both production and distribution processes for rapid restocking; third, the embeddedness of cultural values into the final outcome and the creation of design labels in order to ensure product differentiation; and fourth, the production of several seasonal collections during the year (small-batch production) in order to respond to demand's changing fashion trends and tastes.

In the contemporary fashion industry, multinational retailers (MNRs) emerge as the dominant economic actors. MNRs are vertical-integrated firms, which control the whole production and distribution phases of the item through global multi-plant organization and outsourcing processes. Instances of MNRs are Inditex, Desigual, Marks and Spencer and Wal-Mart, which are able to impose pressures to suppliers due to their sheer power within the market (Scarso, 1997). Gereffi (1994) has describes this situation, pointing to two models that explain the interrelationships between clothing manufacturing firms and retail traders: the buyer-driven and the producer-driven commodity chain. In a producer-driven commodity chain, large manufacturing firms control the productive system, while in a buyer-driven commodity chain large retailers, brand-named labels and trading firms control the production process (Gereffi, 1994). The MNRs are concerned with design and marketing processes, but not manufacturing. Manufacturing processes are outsourced to external firms. However, the MNRs

“manage the production and trade networks and make sure all the pieces of the business come together as an integrated whole. Profits come from unique combinations of high-value research, design, sales marketing and financial services.” (Gereffi, 1994: 99)

Overall, the fashion industry is framed within a buyer-driven commodity chain (Tokatli & Kizilgün, 2004). The main consequence of the current organizational structure of the fashion industry is the ongoing decline of SMEs devoted to both fashion retailing and wholesaling. Retailers cannot compete against MNRs. The high rotation of stocks and the aggressive strategies of marketing have instigated their disappearance through a lack of investment in the innovation that would enable them to adapt to the market. The decline of fashion retailers affects the SME fashion wholesalers, who are their main suppliers. This chain of *cause-effect* has its imprint in the urban spatial patterns of both economic activities. A prototypical case study that explains this process is an urban garment district.

3.3.2 Urban garment districts in the empirical literature

Urban garment clusters provide an interesting and powerful case study within economic geography for several reasons. The first is related to the interactions between urban space and garment-related mature industries. The second focuses on the relationship between the evolution of mature urban garment clusters and the general evolution of garment-related industries. Finally, analysis of urban garment clusters can help us understand interrelated economic multi-scalar processes.

Despite the above-mentioned reasons, urban garment clusters remain an underexplored issue. Some remarkable cases are the garment clusters of London, Milan, Los Angeles or Buenos Aires. Some authors draw some features about their history, location or, to a lesser degree, internal economic structures, but fail to analyze them deeply (Belini, 2017; D'Ovidio, 2010; Hall, 1960; Martin, 1964; Scott, 1984, 2002; Williams & Currid-Halkett, 2011). In contrast to the previous cases, there are some excellent exceptions related to the NYGD, *Le Sentier* (Paris) or Dongdaemun Market (Seoul) (Currid-Halkett & Williams, 2010b; Helfgott, 1959; Kim *et al.*, 2004; Montagné-

Villette, 1990; Rantisi, 2001, 2002, 2004). Therefore, because the literature has sufficiently developed the last three case studies, they are explained in detail in the following paragraphs.

From ready-to-wear to fashion: New York Garment District

The NYGD is undoubtedly the case study that has received the most attention in the literature on urban garment districts. In the middle of the 19th century, the women's apparel industry concentrated in the Lower East Side (LES) of Manhattan, benefiting from the proximity of Jewish garment workers and clothing retailers (Rantisi, 2004). At the beginning of the 20th century, the growth of residential neighborhoods in the center of Manhattan caused a chain reaction. They attracted, first, clothing retailers and, later, the apparel industry, which concentrated until the present day in Midtown (Jackson, 2010). Midtown was a strategic urban space owing to its proximity to a major railway station, facilitating access to out-of-town buyers and commuting workers who lived in the metropolitan area (Rantisi, 2004). The location of the apparel industry helped attract ancillary industries and services such as embroidery, pleating and stitching, buttons, textile design and fashion design (Helfgott, 1959). The internal organization of the NYGD was based on three key actors (Helfgott, 1959). First, manufacturers bought the cloth and sold the final product, as well as ran their own production plants. Second, jobbers did not manufacture the garments, but bought the raw materials and designed and sold the final products. Finally, contractor sewed fabrics into garments and hired workers, even if they were not involved in the marketing of products.

The NYGD's ecosystem was not only held up by the interaction of these actors. The role of a service-related network – fashion magazines, buying offices, design schools and trade associations – helped shift the garment industry towards becoming a fashion industry (The Municipal Art Society of New York, 2011). This move from a low-end to a high-end segment enabled New York to become a fashion capital from the second half of the 20th century (Rantisi, 2004).

At the beginning of the 21st century, the NYGD comprised 79% of all of New York's fashion industry (Williams & Currid-Halkett, 2011), mirroring a great spatial

concentration comprising the value chain of a cloth (design, supply, manufacturing and wholesaling) (The Municipal Art Society of New York, 2011; Trust, 2010).

The NYGD's spatial organization reveals two main insights: first, the vertical disintegration of the production chain resulting in the concentration of small firms devoted to specific tasks (Scott, 1988b); and second rapid changes in demand required the industry to adapt to a flexible production system (Williams & Currid-Halkett, 2014). Despite the importance of the NYGD in the national fashion industry, representing 4.6% of the country's total fashion employment in 2010 (The Municipal Art Society of New York, 2011), the district has been experiencing a set of pressures fostered by the real estate lobby. New York's major Bill de Blasio has offered two proposals. First, restriction of the protection zone, from which the district has benefited since the 1980s as it allows manufacturers to pay lower rents (Rantisi, 2004), and second to move the district to the metropolitan area, most likely to Brooklyn (Safronova, 2017). However, garment-related firms remain opposed. At the present moment, the city's major is negotiating with garment institutions to liberalise only some urban plots from the district and move part of the manufacturing to Brooklyn (Dobnik, 2018; Hilburg, 2018).

From garments to high-tech in Paris: Le Sentier

Although Paris is well-known as a city of high fashion (*haute couture*), few studies have examined the spatial patterns of garment-related activities within the city. Nevertheless, Montagné-Villete (1990) has presented an extensive analysis of *Le Sentier*, the Parisian urban garment cluster at the beginning of the 1990s. In the absence of more in-depth studies, this study can help us understand how *Le Sentier* worked internally and the organization of the garment value chain. *Le Sentier* is located in the second *arrondissement* district of the city, which occupies 55 hectares. According to Montagné-Villete (1990), in the 18th century *Le Sentier* became a high-class resident space, and throughout the 19th century retail firms devoted to fabrics, clothing and jewelry located in its vicinity. Since 1850, with Haussmann's urban redevelopment project, *Le Sentier* took the form of an urban garment cluster devoted to the textile and clothing trade,

where Jews found an economic epicenter to find garment-related jobs. The emergence of New York as the global fashion center after World War Two (Rantisi, 2004) and the industrial restructuring since the second half of the 20th century provoked economic changes in the garment structure of the district. Design, cutting and trade tasks along with small sweatshops remained in Paris, while production was increasingly outsourced to peripheral regions such as Bretagne, Vendée and Orléans. Therefore, *Le Sentier* became more a garment-trade center than a production one (Montagné-Villete, 1990).

The organization of production in *Le Sentier* was composed of a set of economic activities that formed the value chain of a clothing item (Montagné-Villete, 1990). First, wholesalers, which were classified into two types: textile and clothing wholesalers. The former settled inside buildings rather than in premises at the street level, and supplied to manufacturers. According Montagné-Villete (1990), despite the lack of available premises, two thirds of the textile trade of Paris was located in *Le Sentier*. The latter were the intermediaries between the manufacturers and retailers. Montagné-Villete (1990) has highlighted the importance of clothing wholesalers, as they supply the trade inefficiencies of clothing manufacturing firms. Second, clothing producers, who were also classified into clothing manufacturers and contractors. Clothing manufacturers were devoted only to design and to cutting processes, but outsourced the rest of the production processes. They were also often devoted to wholesaling and retailing. Contractors focused on sewing those garments, previously cut by clothing manufacturers, and transformed them into clothing. The number of contractors was higher in the periphery of *Le Sentier* due to its lower rents. Finally, they normally employed immigrants.

In the 1990s, with the closure of garment-related spaces, *Le Sentier* experienced an ongoing decline of its garment specialization at the expense of other, more innovative activities. The boom of the Internet and the dotcoms launched important firms such as Yahoo, and French high-tech-based start-ups began to locate in the district. The district was at that time well-known as the Silicon Sentier (Miller Bouchet, 2015; Moriset, 2014). Nonetheless, the crash of the Internet bubble and the weak relations and excess of competition between firms drove it to its decline at the beginning of the 21st century

(Crespo, 2011; Suire & Vicente, 2009). Nevertheless, the label of Silicon Sentier remained in the district as a hallmark. Today the ICT-based survivors have returned to organize the former project. The present Silicon Sentier is characterized by a set of ICT-, knowledge- and creative-based firms, CWs and top firms such as Blablacar (Guillaume Bregeras, 2017).

Garment districts in Seoul: Dongdaemun Market

The origins of Dongdaemun Market (DM) date back to the beginning of the 20th century. The ongoing location of merchants in public squares and surrounding streets has formed what is the present DM (Kim *et al.*, 2004). In the 1960s and 1970s, DM experienced an increase in clothing manufacturing and trade activity owing to the exporter orientation of South Korea (Kim *et al.*, 2004). At this time, DM was featured as a clothing wholesaling and retail complex, where sweatshops occupied the various levels of the buildings while traders were located at the street level (Kim & Cho, 2017). In the 1980s, DM experienced a great economic impulse that lasted until the present. The causes of this process are the modernization plans carried out by the local government and the role of socioeconomic structures within the DM (Kim *et al.*, 2004).

Modernization plans aimed to upgrade traditional markets through the building of large commercial complexes (similar to shopping malls) in order to gather all of the former traditional markets' businesses. Unlike other similar projects in other parts of the city, the DM revitalization plan took into account the participation of garment-related firms in the development project. This helped maintain those socio-economic structures that had previously been created in the former traditional markets (Kim *et al.*, 2004).

The present DM consists of a spatial garment-based urban concentration of design, production, sales and delivery activities (Ko *et al.*, 2013) encompassing "30 shopping centers, about 30000 stores and 50000 manufacturing firms" (Azuma, 2002: 140). DM comprises low and middle-fashion non-brand firms devoted to design and marketing, including merchant organizations (Azuma, 2002; Ding, 2012). A merchant organization controls several garment wholesaling/retail firms, which are located in large buildings

(Kim *et al.*, 2004). In turn, in the 1990s, large buildings developed marketing strategies for the whole complex, organizing events and supplying facilities under a commercial “label.” This marketing strategy is commonly developed by investor companies (Kim *et al.*, 2004). Focusing on clothing manufacturers, they locate in the surroundings of the market area in order to rapidly supply the wholesalers and retailers in DM (Azuma, 2002). Therefore, firms at DM are embedded within a fast-fashion supply flexible network system, enabling rapid stock rotation (Choo *et al.*, 2009; Kim *et al.*, 2004). The location of complementary products (i.e. fabrics, accessories) has helped DM to configure itself as a cluster of vertical and horizontal relationships (Choo *et al.*, 2009).

3.4 Summary

The analysis of the configuration and evolution of urban garment districts allow to make some contributions in the economic geography. The first contribution concerns the cluster concept. Although the cluster concept permits to identify the competitive advantages and disadvantages that explain the configuration and evolution of urban garment districts, the emergence of NICS encourages its reinterpretation. The configuration of NICs through the spatial concentration of advanced services (architecture, design, advertising, etc.) does not follow the same patterns as industrial clusters. Therefore, the studies of Thomas Hutton represent a starting point in order to identify the factors that condition the emergence of NICs, their features and the relationships built between firms.

The second contribution of the analysis of urban garment districts is related to the study of clusters under an evolutionary perspective. The development of the CLC supplies the shortages of the ILC. By this manner, the CLC aids to understand that firms within an industry adapt differently to challenges causing, at the same time, the emergence or decline of clusters.

Finally, the configuration and evolution of urban garment clusters also allow to deep in the analysis of economic dynamics in contemporary cities. The binomial “productive system – city” makes possible to understand what type of cluster emerged in the

fordist, post-fordist cities and what are currently being configured in the new economy city. By this manner, from an industrial urbanism perspective is possible to analyze the impact of the evolution of productive systems in cities through the study of the economic activities associated to each one and how firms locate and concentrate in urban settings. Thus, the analysis of urban garment districts from an industrial urbanism perspective allow to answer to questions related to their localization and why a substitution of garment-related activities by other related to knowledge and creativity is taking place.

CHAPTER 4 METHODOLOGY AND DATA SOURCES

This chapter presents the different methodologies and data sources that enabled the results to be attained. Concerning the methodology, quantitative (spatial cluster analysis) and qualitative methods (in-depth and informal interviews and non-participant observation) yielded the main results concerning the TGD, both as a garment cluster and an NIC from the beginning of the 20th century until the present. Spatial cluster analysis (Anselin, 1995, 1999) provided statistical results about the spatial behavior of garment-related activities in Barcelona. In-depth and informal interviews (Mack *et al.*, 2005) and non-participant observation (Liu & Maitlis, 2010) complemented the results obtained from statistical methods, while also revealing new insights about the district's economic dynamics.

The analysis of the configuration and evolution of the TGD is based on the gathering of data from a set of primary and secondary sources. Data from primary sources came from firms' self-made census and in-depth and informal interviews. Secondary data include an array of previously unexplored historical and current yearbooks, guides and directories and complementary official databases.

4.1 Methodology

This section describes the methods applied for the development of the thesis. A literature review is conducted for each method, along with how it was employed in the dissertation.

4.1.1 Quantitative methods

Cluster analysis: spatial autocorrelation

In cluster analysis, spatial autocorrelation (SA) is used to analyze the spatial behavior of a variable. SA is a “phenomenon where locational similarity is matched by value similarity” (Anselin, 1999: 258). Exploratory Spatial Data Analysis (ESDA) has been used to identify spatial clusters in geography, including economic clusters, employment concentration, regional specialization, spatial distribution of innovation, tourist concentration, intra-national economic variations, uneven residential patterns, social problems or the characterization of regions (Guillain & Gallo, 2007; Guillain *et al.*, 2006; Gutiérrez & Delclòs, 2016; Gutierrez *et al.*, 2017; Jing & Cai, 2010; Moreno *et al.*, 2005; Paci & Usai, 1999; Patacchini & Rice, 2007; Rodrigues Ramos & Rodrigues da Silva, 2007; Sim & Miller, 2016; Stirboeck, 2006).

The two indexes in SA are Global Moran’s I (GMI) and Local Moran’s I (LMI). The former indicates the spatial clustering degree and the latter the location of different clusters. The GMI index specifies the spatial concentration degree of a variable (univariate) or between two variables (bivariate) in the area of study. The GMI index ranges between -1 (negative spatial autocorrelation) and 1 (positive spatial autocorrelation). The null value is 0, which indicates a random distribution⁸. Formally, GMI is defined as (Anselin, 1995),

$$I = \left(\frac{n}{S_0} \right) \frac{\sum_i \sum_j w_{ij} z_i z_j}{\sum_i z_i^2}$$

Where:

- n is the number of observations,
- S_0 is the sum of all weights,
- w is the value of the weight,
- Z_i is the variable’s value of the unit of analysis,
- Z_j is the median’s value.

⁸ As van Oort and Atzema (2004) note, the difference between a negative spatial autocorrelation and a random distribution is hard to distinguish. They point out that “perfect negative spatial autocorrelation is represented by a checker board pattern” (pp.276)

Interpretations of the results of the GMI's index vary (Table 4.1). Between 0.1 and 0.19, there is a broad agreement to consider them low. However, the range between 0.20 and 0.50 presents different interpretations varying from low, moderate or even high. Finally, up to 0.50, scholars deem the results high.

Table 4.1 Interpretation of Global Moran's index results

	$0.1 \leq x \leq 0.20$	$0.20 \leq x \leq 0.50$	$x \geq 0.50$
Low	Anselin <i>et al.</i> (2007); Rusche <i>et al.</i> (2011)	Missiaia (2014)	-
Moderate	-	Gutiérrez & Delclòs (2016)	-
High	-	López-Gay <i>et al.</i> (2015)	Gutiérrez & Delclòs (2016); López-Gay <i>et al.</i> (2015); Rodrigues Ramos & Rodrigues da Silva (2007)

Source: own elaboration.

Instead, the LMI index disaggregates the GMI result, taking the spatial unit as the object of analysis. The LMI is defined as (Anselin, 1995),

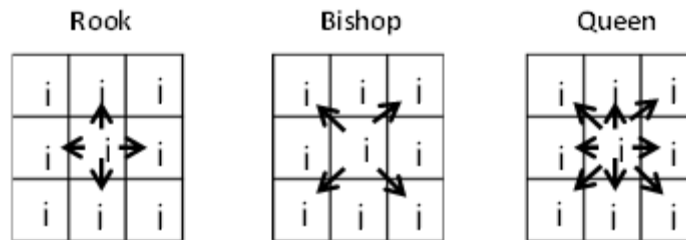
$$I_i = z_i \sum_j w_{ij} z_j$$

The software GeoDa⁹ provides two methods to represent the results. First, the scatterplot enables the GMI's index to be visualized through four quadrants. The upper-right quadrant (High-High) represents the concentration of high values. The lower-left quadrant (Low-Low) indicates the concentration of low values. The upper-left (Low-High) and lower-right (Low-High) quadrants encompass those values that deviate from the mean. Second, the LISA maps (Anselin, 1995) enable the representation of spatial clusters in the LMI, taking into account different contiguity criteria: rook, bishop and queen (Figure 4.1) (Anselin et al., 2007). The former takes those neighboring units adjacent to common edges. The bishop criterion takes those

⁹ Geoda is a free software developed by the Center for Spatially Integrated Social Science in order to facilitate empirical spatial data analysis by GIS non-users (Anselin *et al.*, 2006).

adjacent to common vertices. Finally, the queen criterion takes all neighboring units adjacent to common edges and vertices.

Figure 4.1 Contiguity criteria in LMI



Source: own elaboration.

Anselin (1988) does not specify the situations under which one criterion is more appropriate than another. Many studies do not point out the selected criterion (Guillain & Le Gallo, 2007; A. Gutiérrez & Delclòs, 2016; J Gutiérrez et al., 2017; Rodrigues Ramos & Rodrigues da Silva, 2007). Others specify the queen criterion's choice but without indicating the reasons (López-Gay et al., 2015; Sánchez Rivero, 2008; Sim & Miller, 2016).

In the present dissertation, spatial cluster ESDA was used to identify the spatial autocorrelation of different garment-related activities (textile headquarters, garment-related wholesaling firms and clothing workshops) and the spatial behavior between them. The results were obtained through the following steps. First, the name, address and production process of the units were transcribed from several documents to Excel© databases. Second, the units were geolocated through the Geocode tool offered by QuantumGIS© software. Third, the geolocalized units were annexed through the *Spatial Join* tool by ArcGIS© to a grid composed of one-hectare cells covering Barcelona. Fourth, the dependent variable used as a proxy measure of spatial concentration was the percentage of firms related to their total number in Barcelona. Finally, the selected contiguity criterion was the queen because cities are urban continua, where all of their parts are interrelated.

4.1.2 Qualitative methods

Non-participant observation

Non-participant observation allows the researcher to enter into a social system to observe a set of activities, events and interactions with the aim of understanding a phenomenon in its natural context (Liu & Maitlis, 2010). The main characteristic is that the researcher does not participate in the activities being observed (Liu & Maitlis, 2010).

The methodology used in the non-participant observation adapted the three phases of Spradley's participant observation scheme (Spradley, 1980): first, descriptive observation, whereby the observer tries to record information in as much detail as possible without a specific aim; second, focused observation, in which the observer narrows the observations and relates them to a specific research question; and third, selective observation, which involves focusing on important specified elements in the analysis. Non-participant observation concludes when observations do not add extra information to the study (Liu & Maitlis, 2010).

In this dissertation the non-participant observation was carried out as follows:

- 1) Descriptive observation: initial research questions and hypothesis were established through walking around the district and observing its economic situation. This phase was conducted in the first year of the dissertation (2015) as well as in the Master's thesis (2013).
- 2) Focused observation: key actors who could provide information through in-depth interviews were sought. I mainly focused on garment-related firms for two reasons. First, they are essential to understanding the TGD's garment evolution until the present day; and second, they were the most accessible actors to begin the interview process. However, most managers were reluctant to accept an interview. In the case of Chinese wholesaling managers, no interview was conducted. They showed distrust and, in many cases, did not speak the language proficiently. In the case of local managers, the distrust was

also noticeable. However, a total of ten interviews with garment-related firms were completed.

- 3) Selective observation: once the research questions were established and the in-depth interviews' information had been analyzed, the elements that reflected the district's economic transformation were detected more easily. Therefore, these elements were photographed.

In-depth interviews

In-depth interviews reflect the participant's perspective of a specific topic (Mack *et al.*, 2005). In-depth interviews aid by exploring interviewees' perspectives, ideas and opinions (Boyce & Neale, 2006; Dunn, 2000; McDowell, 2010). Information can be obtained in two ways (Gáinza Veloso, 2006): verbal information, through words and the intonation in the way of speaking; and body language (eyes, facial expressions, etc.).

The main features of in-depth interviews are the following (Legard *et al.*, 2003). First, they provide a mixture of flexibility and organization. The researcher should focus on the issues that they deem interesting to cover, but give the interviewee opportunities to speak about other related topics. Second, the interplay between researcher and interviewee during the interview involves the generation of information. Third, the researcher may employ other resources during the interview to expand upon superficial answers. Finally, the interview may generate a range of feelings that provide useful information to understand the results. In economic geography, the in-depth interview is a frequent tool in research to gather information regarding a range of topics such as cluster evolution, a firm's interrelationships or the role of actors in the industry's development (e.g. Hassink, 2007; Ko *et al.*, 2013; Lazzeretti *et al.*, 2011; Valdaliso *et al.*, 2016).

In this dissertation, in-depth interviews were carried out with several actors framed in the three main spheres of the TGD: the economic, the social and the political. The process by which interviewees were selected was conducted in two phases. First, the non-participant observation aided in identifying people willing to be interviewed,

mainly in the case of garment-related firms. Second, Internet research was conducted to look for important actors in the transformation of the TGD.

In some interviews, participants did not know the answer to certain questions due to a lack of information or knowledge. Hence, some of them led me to other contacts who could help out with specific issues. This process of contacting other interviewees through previous ones is called snowball sampling (Coleman, 1958). In the snowball sampling

“participants with whom contact has already been made use their social network to refer the researcher to other people who could potentially participate in the study” (Mack *et al.*, 2005: 5)

In the analysis of the TGD, in-depth interviews aided information collection about the internal operation of garment-related firms, future expectations about the TGD's clothing wholesaling specialization, and the relationship between CWs with other firms located in the district, among other topics.

Informal interviews

A second type of interview is the informal interview. Informal interviews

“arise in the context and in the natural course of social interactions, and they may be brief but also extensive even if we do not use a recorder.”
(Gáinza Veloso, 2006: 230)

The informal interview is an important qualitative method that can yield useful information (Mack *et al.*, 2005). However, its flexibility may mean that interviewees fail or refuse to focus on the main topics in which the researcher is interested (Kitchin & Tate, 2000). Due to interviewees' time constraints, some authors have applied informal interviews in order to gather rapid information about firms' organization or cluster dynamics, among other topics (i.e. Merkel, 2015; Spinuzzi, 2012; Williams & Currid-Halkett, 2011; Yamamura *et al.*, 2003).

In the analysis of the TGD, informal interviews were not recorded. However, important information was written down by hand. Informal interviews enabled me to gather information about a large range of issues, such as the relationship between local

and Chinese wholesaling trade firms, problems related to the local government's policies, or the relationship between CWs and other similar firms.

4.2 Data sources

Data were gathered from both primary and secondary sources. Concerning primary sources, firms' self-made census (FSC), in-depth interviews and informal interviews were conducted. Regarding the secondary sources, data were collected from several paper publications and online information.

4.2.1 Primary sources

Firms' self-made census

The FSC was conducted in 2015 and 2016 and aimed to register the number of firms located in the TGD as well as their economic activity. The census was developed due to a lack of official statistics. The only census of economic activity provided by the local government¹⁰ (census of economic activity) has three main deficiencies. First, the most recent updates were made in 2014, hence data could not be extrapolated to the present due to the rapid economic changes of the TGD. Simply put, this would cause an analytical inaccuracy. Second, the classification of economic activity is inefficient because it does not adjust to standard classifications such as the Statistical Classification of Economic Activities in the European Community (*Nomenclature des Activités Économiques dans la Communauté Européenne*, NACE rev.2) or the National Code of Economic Activity of Spain (*Clasificación Nacional de Actividades Económicas*, CNAE in Spanish). Finally, the database only includes those firms located at the street level and not those located on building floors.

The census was conducted in the months of October, November and December of 2015 and 2016, and was developed in five phases. First, all visible firms at the street level and those located on upper levels and inscribed on the license plates of buildings were registered. Second, an Internet search was carried out to locate firms that had not been

¹⁰ Available in opendata-ajuntament.barcelona.cat

registered in the previous phase. To this end, Google was used to identify the firms located, approximately, in the 390 buildings that form the TGD. Third, the new firms that appeared in the previous phase were checked personally. Fourth, an activity code was assigned for each firm according to the NACE rev.2 classification. Each code was assigned through exploring the firm's economic activity on its webpage or visiting it personally. The code for those firms that did not have a webpage was assigned through the information provided by commercial and financial firms such as Informa D&B or Asexor. Finally, the FSC was later complemented by two secondary sources of information in order to include those firms that did not appear in the previous phases. The secondary sources are the Official Commercial Register Gazette (*Registro Mercantil*, in Spanish) and the System of Analysis of Iberian Balances (SAIB) (*Sistema de Balances Ibéricos* (SABI), in Spanish). The Official Commercial Register Gazette publishes the establishment of new firms every day, detailing their name, street and, in some cases, their economic activity code. SAIB is developed by the firm Bureau Van Dijk. It provides a census of Spanish and Portuguese firms, specifying the name, street and economic activity, among other information. Although the SAIB specifies that its database is updated monthly, it is not. In comparison with the firms gathered in the FSC, it shows clear deficiencies that will be explained in the following subsections. Nevertheless, SAIB helped complement the information about new firms that were not collected in the previous phases.

In-depth interviews

In-depth interviews were carried out with the aim of obtaining first-hand information, perspectives and opinions from TGD's economic, social and political actors. The development of in-depth interviews helped confirm, complement and discover relevant information about the TGD's configuration and development. A total of 19 in-depth interviews were conducted (Table 4.2). All in-depth interviews lasted between approximately one hour and an hour and a half. They were recorded and later transcribed.

Table 4.2 In-depth interviewees by category

	Organization/Firm	Observations	Date
A (Garment-related firms)	A1	Ready-to-wear wholesaling trader and manufacturer	18 May 2017
	A2	Ready-to-wear wholesaling trader	29 May 2014
	A3	Textile wholesaling trader	4 May 2017
	A4	Ready-to-wear wholesaling trader and designer	23 November 2016
	A5	Spinning manufacturer and wholesaling trader. The firm closed	4 May 2017
	A6	Home linen and ready-to-wear wholesaling trader	9 May 2017
	A7	Ready-to-wear intermediary	21 October 2016
	A8	Ready-to-wear wholesaling trader	25 May 2014
	A9	Clothing manufacturer/trader	23 May 2017
	A10	Clothing manufacturer/trader	3 May 2017
B (Social and economic associations)	B1	Neighborhood association	17 May 2017
	B2	Neighborhood association	5 May 2017
	B3	Trade association	29 May 2014
	B4	Textile industry association	16 May 2017
	B5	Foundation	13 December 2016
C (Knowledge and creativity-based firms)	C1	Co-working	6 October 2017
	C2	Co-working	21 November 2016
	C3	Remote worker for a United States firm	28 November 2016
D (Political agents)	D1	Dreta Eixample's councillor	11 May 2017

Source: own elaboration.

The main topics discussed in the interviews were dependent on the type of interviewee (Table 4.3). In block A, garment-related firms, topics focused on the firms' internal operations and the mechanisms that enabled them to be competitive (firm's trajectory, main suppliers and purchasers, innovation mechanisms, production process and trading strategies and so on). Questions also pertained to the general economic situation around garment-related manufacturing and trade as well as the main threats that affected the firms' competitiveness (i.e. obstructive local public policies, national and international competence and so on). The final issue centered on the future expectations of the TGD as a garment specialization's urban space.

Table 4.3 Main topics and information provided by each interviewed group

Interviewees	Topics	Information provided
A	<ul style="list-style-type: none"> • Historical trajectory of the firm • Type of suppliers and purchasers • Production process • Innovation processes • Firm's main competitors • Garment institutions • Garment's economic situation of the TGD 	<ul style="list-style-type: none"> • Composition of the firm • Network of firm's intra-relationships and innovation in the production process • The composition of the garment value-added chain • Adaptability to internal and external shocks • The role of public and private institutions and their role in the TGD • Future expectations about the TGD's garment specialization
B	<ul style="list-style-type: none"> • TGD's main socioeconomic problems • TGD's economic evolution • Garment sector evolution (textile, wholesaling and apparel manufacture) 	<ul style="list-style-type: none"> • Conflicts with garment immigrant entrepreneurs • Problems with tourism sector • Problems with public spaces and equipment • Garment's evolution from the international, national and regional scale
C	<ul style="list-style-type: none"> • TGD's main factors of attraction • Firm's internal operation • External relations with other firms 	<ul style="list-style-type: none"> • TGD's main advantages that act as centripetal forces • Network of relationships between knowledge and creativity-based firms. • Composition and the internal operation of the firm
D	<ul style="list-style-type: none"> • TGD's main socioeconomic problems • Cooperation relationship with garment firms 	<ul style="list-style-type: none"> • Problems with tourism, poverty, pollution, etc. • Public politics to enhance innovative firms • Situation about garment specialization of the TGD

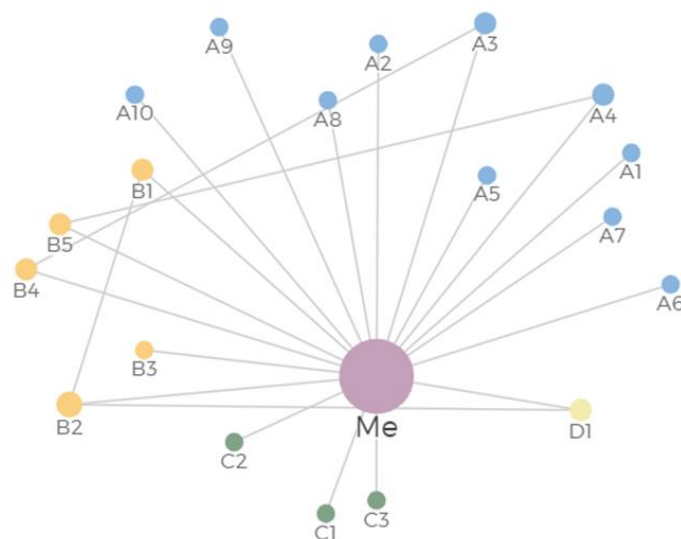
Source: own elaboration.

Block B encompasses social and economic associations. Concerning the former, the main topics were related to the district's social situation and perspectives regarding the economic evolution of the TGD. The information attained was centered on two topics: the district's quality of life (public space, equipment, and so on); and the cultural shock

associated with the entry of the Chinese community into the district. In the case of economic associations, the main issues focused first on their role in the configuration and evolution of the TGD as a garment cluster, second on the garment-related industry situation at international, national and regional scales, and finally on how these processes influenced the TGD's garment specialization. Block C focuses on knowledge and creativity-based firms. The interviews were largely centered on CWs as a proxy of this type of firm, including the reasons behind their location in the TGD, their internal operations and their relationship to other similar firms in the district. Considering that two of the three interviewees worked in CWs, this information was important in helping to disentangle how they worked as microclusters. Block D is focused on political agents. Although only one politician was interviewed, the information was relevant to understanding different dynamics of the TGD under the institutional policy approach. The main topics centered on social problems (poverty, pollution and public equipment) and the relationship between the local government with both the garment-related firms and civil- and economic-based associations.

In-depth interviewees were obtained as follows (Figure 4.2). In the first phase, interviewees were contacted by email, telephone or by asking them personally. Through snowball sampling, three provided another four contacts (A3→B4, A4→B4, B2→B1, D1).

Figure 4.2 Network of in-depth interviewees



Source: own elaboration.

Informal interviews

During the numerous field trips conducted in the TGD, several people spoke to me informally about various aspects of the district or general characteristics of Barcelona (Table 4.4). Due to the informality of the conversations, they could not be recorded. However, the most relevant information was subsequently annotated.

Table 4.4 Informal interviewees

Location	Interviewees	Interviewee	Main information
Located within the TGD	I1	Web designer worker	Relationship to other firms in the district
	I2	Worker in a haberdashery firm	Aspects in relation to gentrification processes
	I3	Co-working' worker staff	Co-working internal dynamics and relationship with the TGD
Located outside the TGD	I4	Partner in a ICT-based firm	Factors to locate in Barcelona
	I5	Partner in a videogame firm	Factors to locate in Barcelona

Source: own elaboration.

4.2.2 Secondary sources

Yearbooks, guides and directories

A set of secondary sources provided data about the location of garment-based firms in Barcelona between 1857 and 2017. For the analysis of the evolution of the TGD's garment cluster, a set of economic activities were selected: textile manufacturing firms, clothing manufacturing and trade firms (CMT), and textile and clothing wholesaling firms. The data sources and gathered information comprised the following:

- The Consultant (J.A.S, 1857) (*El Consultor* in Spanish), 1857. This provided the location of each firm within the cotton textile industry and its industrial subsector (spinning, weaving, printing, bleaching and scouring). In relation to trade firms, textile wholesaling and textile brokers were selected.

- Commercial Guide of Barcelona and its province (Bailly-Bailliere, 1887b) (*Guía Comercial de Barcelona y su provincia* in Spanish), 1887. This provides the location of cotton textile manufacturing firms and their industrial subsector (weaving, spinning, printing and finishing). Textile wholesaling and textile brokers were selected as trade firms.

- Meler Yearbook (Meler, 1887) (*Anuario Meler* in Spanish), 1887. This offers information about the location of cotton textile manufacturing firms, thereby complementing the information contained in the Bailly-Bailliere Barcelona's Commercial Guide (1887).

- Yearbook of trade, industry, magistrature, and government (Bailly-Bailliere, 1887a) (*Anuario del comercio, de la industria, de la magistratura y de la administración* in Spanish), 1887. This provides the location of cotton textile manufacturing firms in villages that were not yet annexed to Barcelona such as *Gràcia*, *Sant Martí* or *Sant Andreu* districts.

- Yearbook of trade, industry, magistrature, and government (Bailly-Bailliere, 1911) (*Anuario del comercio, de la industria, de la magistratura y de la administración* in Spanish), 1911. This offers the location of textile wholesaling firms and complements the information gathered from the Catalanian Industrial Yearbook of 1916.

- Catalanian Industrial Yearbooks (CIYs) (n.d 1916, 1934; 1954) (*Anuarios industriales de Cataluña* in Spanish), 1916, 1934, 1954. The CIYs provide the location of both textile manufacturing firms (in the subsectors of weaving, spinning, printing, and finishing) and CMT.

- Commercial Yearbook. Industry and Commercial's National Guide (n.d, 1931) (*Anuario Comercial. Guía Nacional de la industria y comercio* in Spanish), 1931. This provides the location of textile wholesaling firms and complements the information of the CIY 1934.

- Industrial and commercial guide of Spain (n.d, 1955) (*Guía industrial y comercial de España* in Spanish), 1955. This offers the location of textile wholesaling firms and complements the information of the CIY 1954.

- General Yearbook of Spain (n.d, 1975) (*Anuario General de España*, in Spanish), 1975. This provides the location of cotton textile manufacturing firms and their economic activity (weaving, spinning, printing, and scouring).

- Textile industry's consultant guide (*Guía consultorio de la industria textil* in Spanish), 1976. This provides the location of CMT firms and complements the Baily-Bailliere General Yearbook of Spain of 1975.

- Informtext Yearbook (n.d, 1996) (*Anuario Informtext* in Spanish), 1996. This provides the location of firms devoted to textile manufacturing, CMT and garment wholesaling firms (textile and clothing).

- System of Analysis of Iberian Balances (SAIB) (*Sistema de Análisis de Balances Ibéricos* (SABI) in Spanish), 2016. SAIB is an online database (Bureau Van Dijk) that offers the location of textile manufacturing, CMT and garment wholesaling firms. SAIB provides updating information about firms located in Spain and Portugal, such as location and economic activity. However, SAIB comprises a set of disadvantages. First, the database is, unfortunately, not correctly updated. The number of firms included in SAIB was compared to those collected through the firm's self-made census in the TGD. The results indicated a strong degree of dissymmetry between the databases in terms of the number of garment-related firms (clothing wholesaling firms and CMT), being higher in the self-made census (Vicente-Salar *et al.*, 2018). The second shortcoming is not directly related to SAIB, but to the classification of economic activity that it deploys, NACE rev.2. In fact, this deficiency frames all the classification of economic activities (i.e. CNAE, ISIC). They do not accurately represent the different firms' productive organizations. In the case of garment-related firms, the NACE Rev. 2 assigns only one activity code to firms that develop several activities within the value chain. It causes inefficiencies and misunderstandings in the analysis of results (for

particular instances see Vicente-Salar *et al.*, 2018). Despite the inefficiencies of SAIB, its employment for analyzing the current location of garment-related firms is inevitable owing to the lack of alternative, more accurate databases.

Other complementary historical sources

Other non-textile documents were consulted in order to add information:

- Official State Gazette, law 1013/1963 (*Boletín Oficial del Estado Español, decreto 1013/1963*, in Spanish), 1963- 1986. In the 1960s, the Spanish government in Franco's dictatorship regulated both the imports and exports. Through the law 1013/1963 each cotton textile manufacturing firm that wanted to import raw cotton and export finished products had to become registered in a database. The database was published periodically in the Official State Gazette, providing the location of all of these firms in Spain.
- "La Vanguardia" online newspaper library. The Catalan newspaper "La Vanguardia" offers an open access online library to all its digitalized newspapers. Between 1990s and 2000s, information about the TGD was successfully obtained.

Touristic lodging registration (TLR)

The Catalanian Government's Firm and Knowledge Department (*Departament d'Empresa I Coneixement*, in Catalan) provides a register of all types of touristic accommodation in Catalonia. It is updated monthly and offers information about the location of each establishment and its typology (hotel, hotel-apartment, hostel or apartments for touristic use). Data were added to the self-made census in the analysis of the TGD's economic structure.

Hotels and hostels, which comprise a set of rooms in the same building, were considered as a firm. The situation is different for hotel-apartments (HA) and apartments for touristic use (ATU). A firm can manage several HA and ATU throughout Barcelona. Hence, each HA and ATU was accounted as a firm.

System of Analysis of Iberian Balances (SAIB)

SAIB also provides information about the location of knowledge and creativity-based firms. Although the information is not correctly updated, the results may be considered as an explanatory proxy of the present. SAIB was used to analyze the urban location of these firms in Barcelona and their spatial relationship with the TGD.

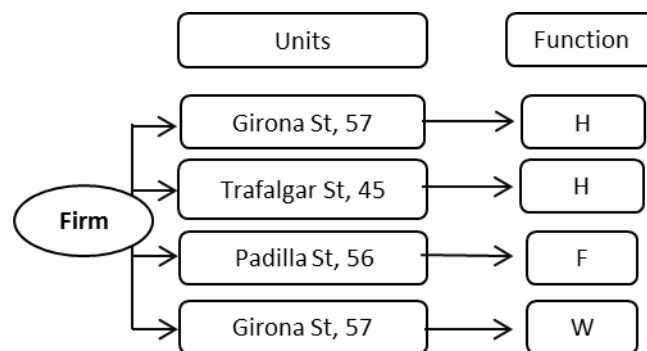
4.2.3 Procedures for resolving difficulties concerning data management

Yearbooks, guides and directories

The information provided by yearbooks, guides and directories is complex owing to a lack of data standardization for accurate geolocalization and subsequent analysis. To overcome these deficiencies, four processes were undertaken: definition of a unit's function; the building of matrices to avoid duplications; the merging of units; and, the (quasi-)geolocalization of firms.

First, we should distinguish between various concepts such as firm, unit and function. The firm can be constituted of several units. Each unit may be located in a different urban location, with one or several functions within its value chain. For instance, a firm can be formed by four units, which are located throughout Barcelona (Figure 4.3). Each unit is devoted to a different function, being a headquarters, a factory or a warehouse.

Figure 4.3 An instance of a firm's spatial structure.



Source: own elaboration.

The first phase was to define the unit's function. Each firm can be fragmented into several units, located in diverse locations and devoted to specific functions. In the case of CIYs, each yearbook provides the location of each unit of the firm and its function. The functions were headquarters and factories. However, the CIYs do not specify the functions of all units, resulting in a lack of information. Nevertheless, through a pattern detected in the each CIY, it was possible to define the functions of some units as headquarters. The pattern is as follows. Focusing on 1916, there were 267 firms (75.85%) that had two or more units with defined functions. One of them was defined as a factory and the other as a headquarters. The pattern was similar in 1934, with 339 firms (56.97%) and in 1954 with 336 firms (50.69%). Consequently, those undefined units belonging to firms, whose second unit is a factory, were assigned as a headquarters. As a result, in 1916, 82 headquarters were added and in 1934 and 1954, 24 and 47 headquarters, respectively.

In order to analyze the location of headquarters in the 20th century, the above-mentioned pattern was also applied to the rest of the yearbooks in the second half of the century, where the problem was identical. This was also true of the Baily-Bailliere General Yearbook of Spain (1975) and Informtext (1996). In the case of SAIB (2016), the problem was more complex: SAIB only provides the location of a single unit without offering its function. However, given the low number of units provided, the undefined function was taken for granted.

The second phase was the building of matrices to avoid duplicating a unit in the textile manufacturing subsectors. Numerous firms were devoted to various productive processes within the value chain. This situation indicated two facts. First, a firm might be composed of several units, devoting each to a specific production process. Second, these units could be located in the same place, or in different ones. In order to solve these issues, a matrix was created for each yearbook. The matrix was composed by rows representing the different industrial subsectors. Each subsector was formed by the name of the firms and their locations. Excel© provides the "VLOOKUP" function (*BUSCARV*, in Spanish) that was used to detect if the same firm was located in different subsectors. If the result was positive the function "VLOOKUP" returned a result, in this case "X." Conversely, if the result was negative the function

“VLOOKUP” returned “#N/A.” One instance was the firm *Alegre Ferrer i Pi*, which was devoted to both weaving and spinning production processes (Figure 4.4).

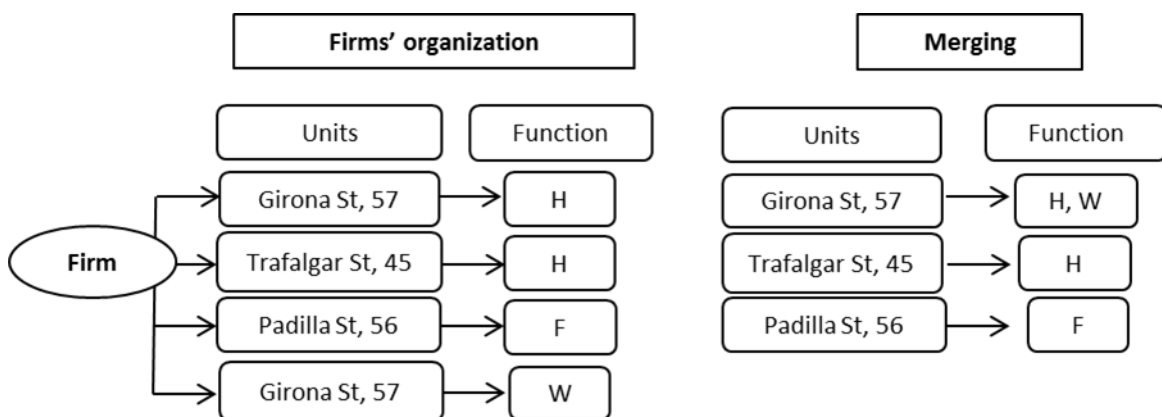
Figure 4.4 Matrix screenshot of textile manufacturing firms devoted to weaving and spinning

Firm	Weaving				Spinning			
	Spinning	Printing	Weaving	Sizing	Weaving	Printing	Spinning	Sizing
Alegre Ferrer i Pi	x	#N/A	#N/A	x	x	#N/A	x	x
Almeda y Alemany	x	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	x
Almirall	x	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	x
Almirall	x	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Astop y coll	x	#N/A	#N/A	#N/A	#N/A	#N/A	x	#N/A
Balive sa	x	#N/A	x	#N/A	#N/A	#N/A	#N/A	#N/A
Barbus	x	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Barbany	x	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Barbara (Hijo de Miguel)	x	#N/A	x	#N/A	#N/A	#N/A	#N/A	#N/A
Barbara (Hijo de Miguel)	x	#N/A	x	#N/A	#N/A	#N/A	#N/A	#N/A

Source: own elaboration.

The third phase was the merging of units. As explained at the beginning of the section, each unit has a particular function. However, some units are devoted to several (Figure 4.5). For instance, a firm may comprise headquarters and warehousing functions in the same location. In this case, a unit merging process was carried out. Functions that were located in two identical units were joined to form a unit. This process was complementary to the second phase.

Figure 4.5 Unit merging process



Source: own elaboration.

The fourth phase concerned the (quasi-)geolocalization of units. The complete geolocalization of all units was impossible due to various difficulties. The different political regimes in Spain throughout the 20th century (Primo de Rivera's dictatorship, the Second Republic, Franco's dictatorship and the reinstatement of democracy) meant that many streets changed their names several times. On the other hand, during the 20th century, Barcelona's urban interventions instigated the physical elimination of streets, especially in the old city (the opening of *Via Laietana* and the creation of *Rambla del Raval*, among others). Nevertheless, the percentage of geolocalized units exceeded 90% in all of the years analyzed (Table 4.5).

Table 4.5 Number and percentage of (non)geolocalized and units in each year

	Source	Geolocalized	Geolocalized (%)	Not geolocalized	Not geolocalized (%)	Total
1857	<ul style="list-style-type: none"> ▪ The Consultant 	575	100	0	0	575
1887	<ul style="list-style-type: none"> ▪ Bailly-Bailliere Barcelona's Commercial Guide ▪ Meler Yearbook ▪ Yearbook of trade, industry, magistrature, and government 	639	99,69	2	0,31	641
1911/1916	<ul style="list-style-type: none"> ▪ Catalonian Industrial Yearbooks ▪ Yearbook of trade, industry, magistrature, and government 	815	94,00	52	6,00	867
1931/1934	<ul style="list-style-type: none"> ▪ Commercial Yearbook ▪ Catalonian Industrial Yearbooks 	1022	95,78	45	4,22	1067
1954/1955	<ul style="list-style-type: none"> ▪ Industrial and commercial guide of Spain ▪ Catalonian Industrial Yearbooks 	1255	94,29	76	5,71	1331
1975	<ul style="list-style-type: none"> ▪ Bailly-Bailliere General Yearbook of Spain ▪ Textile industry's consultant guide 	898	97,29	24	2,71	922
1996	<ul style="list-style-type: none"> ▪ Informtext 	509	97,88	11	2,12	520
2016	<ul style="list-style-type: none"> ▪ SAIB 	466	100,00	0	0,00	466

Homogeneization of data

The homogenization of the results obtained was one of the main challenges faced by the dissertation. First, each yearbook provided information through headings with different titles. This situation compelled us to select those headings that were as similar as possible (Table 4.6). In the case of CMT firms, the names of headings varied slightly, being “Clothing manufacturing and complementarities,” “Clothing manufacturing” or “Clothing industry.” However, the name of the sub-headings rendered homogenization more difficult. The selected criterion was to choose both those sub-headings that represent occupations related to the clothing manufacturing and those products of greater consumption. Therefore, in 1916, women’s ready-to-wear, shirts and tailoring were selected. In 1931, the sub-headings were quite similar to the previous, but in 1954 they changed. In this case the sub-headings no longer represented products, but rather only appeared in the title “clothing workshops”. In 1976 and 1996, however, the sub-headings once again referred to products. In these cases, the range of products was larger than in previous years. In the case of garment wholesaling firms in the period between 1911 and 1955, the selected sub-headings were “fabric warehouses.”¹¹ On the other hand, there was no sub-heading that specified wholesaling firms devoted to the clothing trade. However, from 1975, the yearbooks detailed both textile and clothing wholesaling. In the case of SAIB (2016), the sub-headings are very brief. Therefore, “fabric wholesaling” and “clothing and shoe wholesaling” were selected. The case of textile firms was easier. Despite the fact that the name of the sub-headings varied from one yearbook to another, the selection was rather uncomplicated owing to the similarity of the terms.

¹¹ The yearbook *The Consultant* (1857) already specified that “warehouses” were devoted to wholesaling trade.

Table 4.6 Yearbooks, guides and directories and the selected garment-related economic activities

Year	Source of information	Textile manufacturing	Garment wholesaling	CMT
1911	Yearbook of trade, industry, magistrature, and government	<ul style="list-style-type: none"> ▪ Cotton fabrics ▪ Cotton spinning and twisting ▪ Cotton printing ▪ Bleaching, dyeing and stiffening 	<ul style="list-style-type: none"> • Fabric warehouses 	<ul style="list-style-type: none"> ▪ Women's ready-to-wear ▪ Shirts ▪ Tailoring
1916	Catalonian Industrial Yearbook	<ul style="list-style-type: none"> ▪ Cotton spinning and twisting ▪ Cotton printing ▪ Bleaching, dyeing and stiffening 	<ul style="list-style-type: none"> • Fabric warehouses 	<ul style="list-style-type: none"> ▪ Children and women ready-to-wear • Shirts
1931	Commercial Yearbook. Industry and commercial's National Guide	<ul style="list-style-type: none"> ▪ Cotton spinning factories ▪ Cotton weaving factories ▪ Printing factories ▪ Stiffening, bleaching and finishing factories 	<ul style="list-style-type: none"> • Fabric warehouses 	<ul style="list-style-type: none"> ▪ Clothing workshops
1934	Catalonian Industrial Yearbook	<ul style="list-style-type: none"> ▪ Cotton spinning factories ▪ Cotton weaving factories ▪ Printing factories ▪ Stiffening, bleaching and finishing factories 	<ul style="list-style-type: none"> • Fabric warehouses 	<ul style="list-style-type: none"> ▪ Coat ▪ Bath robe
1954	Catalonian Industrial Yearbook	<ul style="list-style-type: none"> ▪ Cotton spinning factories ▪ Cotton weaving factories ▪ Printing factories ▪ Stiffening, bleaching and finishing factories 	<ul style="list-style-type: none"> • Fabric warehouses 	
1955	Industrial and commercial guide of Spain	<ul style="list-style-type: none"> ▪ Weaving factories ▪ Printing factories ▪ Spinning factories ▪ Bleaching, dyeing and stiffening factories 	<ul style="list-style-type: none"> • Fabric warehouses 	
1975	Baily-Bailliere General Yearbook of Spain	<ul style="list-style-type: none"> ▪ Weaving factories ▪ Printing factories ▪ Spinning factories ▪ Bleaching, dyeing and stiffening factories 	<ul style="list-style-type: none"> • Fabric warehouses 	
1976	Textile industry's consultant guide			<ul style="list-style-type: none"> ▪ Coat ▪ Bath robe

		<ul style="list-style-type: none"> ▪ Cotton fabrics without specifying ▪ Cotton spinning without specifying ▪ General printing ▪ Dying on cotton fabrics ▪ Stiffening on unspecified cotton products ▪ Bleaching on cotton ▪ Finishing on cotton fabrics and raw fibers 	<ul style="list-style-type: none"> ▪ Fabric wholesaling ▪ Spinning wholesaling ▪ Knitwear clothing wholesaling ▪ Dressmaking clothing wholesaling 	<ul style="list-style-type: none"> ▪ Robe ▪ Blouse ▪ Shirt ▪ Without specifying ▪ Female clothes: <ul style="list-style-type: none"> - Rain cloths - Trousers - Blouse - Skirts - Suits - Dresses - Coat ▪ Male: <ul style="list-style-type: none"> - Coat - Trousers - Jacket - Shirt
1996	Informtext			
2016	SAIB	<ul style="list-style-type: none"> • Spinning of textile fibers • Manufacturing of fabrics • Textile finishing 	<ul style="list-style-type: none"> • Fabric wholesaling • Clothing and shoe wholesaling 	<ul style="list-style-type: none"> • Manufacturing of other clothes and accessories

Source: own elaboration.

Second, the yearbooks did not provide complete information about all of the economic activities developed by firms. This was true of those firms defined as fabric warehouses and clothing workshops. The information provided by advertisements in yearbooks and photographs on the Internet helped improve knowledge of those firms gathered in the database. Concerning fabric warehouses, the information confirmed that they were fabric wholesaling firms (Picture 4.1). This result helped to build a complete time series of the garment wholesaling trade. The same was true of clothing workshops, the results highlighting that they were also devoted to retail (Picture 4.2). Therefore, I decided to re-name clothing workshops as clothing manufacturing and trade firms (CMT).

Picture 4.1 Advertisements of fabric warehouses



Source: Anuario Riera, 1897 and todocoleccion.com.

Picture 4.2 Photographies of clothing workshops. From top to down and left to right: Pantaleoni retail and clothing manufacturing spaces (in different locations), Carreño shirt and Delafeu shirts



Source: Canet, 1914 and todocoleccion.com.

Finally, these results do not clarify whether CMT included the manufacturing and retail functions in the same spaces. However, the results highlight that some firms did. Two instances are Faustino Salva and the department store *El Siglo* (Picture 4.3). These results should help facilitate a better understanding of the urban spatial location of CMT firms in Barcelona at the beginning of the 20th century.

Picture 4.3 Photographies of CMT firms that shared manufacturing and retail functions in the same space spaces. Top: Faustino Salva; Down: El Siglo



Source: Canet, 1914 and todocoleccion.com.

4.3 Summary

The methodology and data sources are one of the most important parts of the thesis. Regarding methodology, quantitative (spatial cluster analysis) and qualitative methods (in-depth and informal interviews and non-participant observation) have been applied. The use of both methods allows to complement results in order to understand better the economic configuration and evolution of the TGD.

In relation to sources of data, they are primary and secondary. Primary sources concern a FSC, in-depth and informal interviews. Secondary sources regard yearbooks, guides and directories, other complementary historical sources, a TLR and the use of the SAIB. One of the main challenges was the accessibility to these data sources. In relation to primary data, some interviewees, particularly the garment-related firms' managers, showed a considerable mistrust. Because of that, the information about business and cluster dynamics required a couple of years to be collected. On the other hand, the lack of official statistics entailed the building of the FSC in order to analyze the number and activity of the firms that composed the district. Concerning secondary data, the search, transcription, management and filtering of information has been a massive work. However, it affords to build a valuable database that allows, first, the study of the spatial evolution of the garment-related activities in Barcelona and, second, to highlight the importance of the TGD in the spatial concentration of them.

CHAPTER 5 THE TRAFALGAR GARMENT DISTRICT. GEOGRAPHICAL ASPECTS IN THE ECONOMIC AND HISTORICAL EVOLUTION

The literature about the TGD is almost non-existent because of a lack of analysis of this urban economic space. One of the aims of the present chapter is therefore to propose the toponym of the Trafalgar Garment District for this specific urban area. The second aim is to present, from the beginning of the twentieth century to the present, the economic and historical characteristics of the TGD from a geographical viewpoint in order to understand two points—its importance within the textile and fashion industry, and the current economic change toward a knowledge and creativity-based economic space.

5.1 The Trafalgar Garment District. A toponymical proposal

The TGD is an urban area located in the south-west side of the Dreta de l'Eixample neighborhood¹² (Figure 5.1) (henceforth Dreta de l'Eixample). The Dreta de l'Eixample is the largest neighborhood (212 ha) of the six that form the Eixample district (henceforth Eixample), which is bounded at the north and south by Gràcia and Ciutat Vella districts (Barcelona's old city), respectively. Because of its large urban dimensions and its central urban position, the Dreta de l'Eixample has to date encompassed three different socioeconomic realities: firstly, the urban axis Avinguda Diagonal -Passeig de Gràcia - Plaça Catalunya depicts Barcelona's most elite economic and commercial urban area. Traditionally, it was devoted to high-class residents and, today, headquarters of the most luxurious commercial firms are located there; secondly, the TGD urban area, where traditionally garment-related firms settled; and finally, the rest of the neighborhood, which has traditionally been residential.

¹² Barcelona's administrative organization is divided into three levels. The district (highest level) is formed by neighborhoods (medium level), and this latter is configured by census tracks (lowest level). The TGD is composed of four census tracks.

Figure 5.1 Location of the TGD



Source: own elaboration.

Despite some attempts to provide a toponym for this urban area due to its historical economic specialization (Carreras, 1993; Colell *et al.*, 2009), it has not yet received any that distinguishes it as a former genuine urban economic space. I propose the name of the Trafalgar Garment District (TGD). The aim is to stress the existence of an old urban garment cluster from the beginning of the twentieth century and to point out its importance within the garment-related industries and trade in Barcelona and Catalonia.

The TGD's urban limits are defined by Gran Via de les Corts Catalanes, Passeig de Sant Joan, Trafalgar Street, and Roger de Llúria Street. There are also some short streets and passages that have been included as connectors to the Sant Pere neighborhood¹³ (henceforth Sant Pere) (one of the three neighborhoods of the Ciutat Vella district), such as Sant Benet Street, Mendez Nuñez Street, Lluís el Piados Street, Passatge de Sert, and Passatge de les Manufactures. The current TGD benefits from a strategic urban position in Barcelona from an accessibility perspective. The district is embedded

¹³ Officially, Sant Pere is known as Sant Pere, Santa Caterina i La Ribera neighborhood. Each of the three names corresponds to a part of the neighborhood, Sant Pere being that located adjacent to the TGD.

within a dense urban and metropolitan network because of the location of a set of different transport infrastructures (public bicycles, subway, buses, and commuter trains). Hence, the TGD is a central urban area.

Since the beginning of the twentieth century, important garment activity has been concentrated in the TGD, comprising textile manufacturing headquarters, textile and clothing wholesaling, and, to a lesser degree, CMT firms. The emergence of the TGD was not a random process, but descends from the former textile economic concentration in Sant Pere, where, throughout the eighteenth and nineteenth centuries, cotton factories were located.

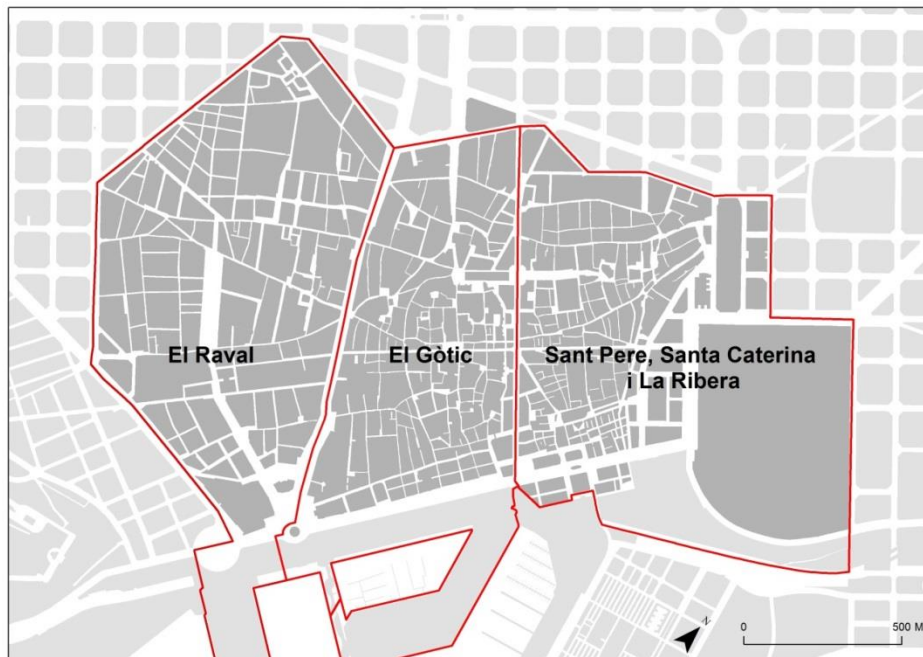
5.2 Contours of the Trafalgar Garment District, 1800–2009

5.2.1 Barcelona's textile economic patterns in the eighteenth and nineteenth centuries: an overview

The configuration of the TGD cannot be understood without focusing on the textile manufacturing spatial patterns in the eighteenth and nineteenth centuries, and especially on the historical role of Sant Pere. Sant Pere, along with El Raval and El Gòtic, is one of the three neighborhoods that form the Ciutat Vella district (Figure 5.2).

In this period, the evolution of textile manufacturing's location was conditioned by a set of location factors. Thus, during the eighteenth century, the proximity to water resources attracted the first textile factories in Sant Pere because of the location of the Rec Comtal, an irrigation system (Ayala, 1987, citing García & Guardia, 1986; Nadal *et al.*, 2012). The origin of the Rec Comtal was the Besòs River (Martín Pascual, 1997). Textile factories took advantage of this urban spot to carry out dyeing and washing processes, Sant Pere thus becoming a textile industrial district, where specialized labor was also located (Thomson, 1994). Textile factories manufactured Indianas. Indianas were printed cotton textiles that were initially imported from Asiatic

Figure 5.2 The neighborhoods that form the *Ciutat Vella* district



Source: own elaboration.

countries at the beginning of the eighteenth century. However, during the century, the number of Indianas textile factories in Barcelona increased for three main reasons (Sánchez, 2011): firstly, the prohibition of its importation to Spain (and from European countries); secondly, the strong investment by local merchants; and, finally, a solid handcrafting labor pool devoted to textiles. Busquets (2004) also adds the investment resulting from profits generated by trade with the American colonies; an important national demand market; and the protectionism that helped the national economy to compete with European countries.

At the beginning of the nineteenth century, and particularly from the 1830s, coal emerged as an important energy source. The first factory to incorporate steam power was El Vapor in 1832 (Raveaux & Sanchez, 2010; Tatjer, 2006), located in the El Raval neighborhood. The introduction of coal not only brought about the industrialization of textile manufacturing, but also environmental and health problems because of the mixture of land uses (residential and industrial) in the walled city. Therefore, the emergence of diseconomies of scale in Sant Pere due to environmental problems and

lack of space forced textile factories to look for larger spaces further beyond the walls, particularly at the closest villages (Tatjer, 2006).

Those villages¹⁴ such as Gràcia (Fugueras, 1997), Sants, Sant Martí (Thomson, 2011), and Sant Andreu not only offered larger spaces and fewer industrial restrictions than Barcelona, but also the advantage to remain located near transport infrastructures such as the port and the railways (Alcaide Gonzalez, 2005; Catalan, 1997). The port was a fundamental aspect of the economic development of the city, contributing 17% to the Catalan Gross Domestic Product (GDP) in 1846 (Carreras & Yáñez, 1992). In this year, the main higher value products that entered through the port were cotton fabrics and the raw cotton, accounting for 24% of the total (Carreras & Yáñez, 1992). This highlights the significance of the port in the development of the textile industry, as well as the importance of the textile industry in Barcelona's local economic development. The port was also important for the importation of British coal. The great properties of British coal meant that its importation increased progressively (Busquets, 1992; Carreras & Yáñez, 1992). Concerning the railways, the first ones were developed between the 1840s and the 1860s. They were mainly four lines that connected Barcelona to its regional periphery (Alcaide Gonzalez, 2005; Camprubí i Plans, 1996; Delgado, 2010; Llusà Torra, 2002; Olivé i Guilera, 2000): Barcelona–Mataró (1848), Barcelona–Granollers (1854), Barcelona–Martorell (1854) and Barcelona–Manresa (1859). On the Barcelona–Mataró route, the station was located between Barceloneta and Ciutadella, outside the walls. For Barcelona–Granollers, the station was Estació de França, which was located inside the walls on the south side of Sant Pere. For the Barcelona–Martorell line, the station was located outside the walls between Rambla Catalunya and Ronda Universitat. Finally, the station for the Barcelona–Manresa line was what is the current *Estació del Nord* (North Station), which was also outside the walls. Therefore, despite factories locating outside walls in the search for larger spaces, transport infrastructures were considered a fundamental factor in the textile manufacturing spatial organization.

¹⁴ In 1897, Sants, Les Corts, Sant Gervasi, Sant Andreu, and Sant Martí were villages that were annexed to Barcelona, becoming neighborhoods of the city. In 1904 and 1921 respectively, Horta and Sarrià also became neighborhoods.

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Since the second half of the nineteenth century, transport infrastructures conditioned the geographical behavior of the textile manufacturing industry, causing three different spatial processes. Firstly, factories moved to the regional periphery of Barcelona, particularly to the watersheds, forming textile company towns. Although the availability of water as an energy source, the location of large low-skilled labor pools, and the lower land rents were also important location factors (Llusà Torra, 2002), the accessibility of railways was fundamental to connect the regional periphery to Barcelona (Enrech, 2003). Secondly, factories also kept moving to the Barcelona's closest villages (Enrech, 2003). The third process concerns headquarters and their storage facilities, which remained in Sant Pere (Tatjer, 2006, 2010). The proximity of the central business district, located in the port and its surroundings (Colell & Vidal, 1989), meant that headquarters formed part of a financial and commercial central urban area (Nadal *et al.*, 2012). Therefore, the textile industry spatially split into an administrative and logistic space (Sant Pere) on the one hand, and an array of several industrial spaces scattered across Catalonia on the other. This spatial configuration of the textile industry involved building an industrial network that connected Sant Pere with both the urban and regional peripheries (Tatjer, 2010).

At the end of the 1850s, textile industry location patterns were influenced by the city's urban enlargement. The wrecking of walls and the design of l'Eixample (1859) by Ildefons Cerdà (1815–1876) (Pallares-Barbera *et al.*, 2011) gave rise to new urban spaces conditioning new spatial patterns of distribution of the population and manufacturing from the 1860s. High-class residents started to concentrate in the Eixample, and particularly in the urban area that coincided with the TGD and its surroundings (Garcia Espuche, 1990). Headquarters, along with their storage facilities, also progressively moved from Sant Pere to the incipient TGD (Cabana, 2001; Garcia Espuche, 1990).

The displacement of headquarters along with their storage facilities illustrates the move of the textile administrative and logistic economic space from Sant Pere to the TGD, being the first spark in the configuration of the district. Throughout the twentieth century, the TGD became progressively a garment cluster because of the location of

other activities within the textile and clothing value chain, such as the garment wholesaling sector.

5.2.2 Contextualizing the evolution of the Trafalgar Garment District, 1900–2009

Throughout the twentieth century, garment-related industries (the textile industry and garment wholesaling) experienced a range of transformations that conditioned the garment specialization of the TGD.

In the first half of the twentieth century, new developing industries emerged (i.e., printing, automobile, iron and steel, machinery, chemistry), causing the diversification of Barcelona's economy (Catalan, 1997; Tatjer, 2006). Despite that, the textile industry was still significant in Barcelona's economy (Oliveras i Samitier, 2013). This situation coincided with the ongoing location of headquarters in the TGD. In some cases, the textile entrepreneur owned the building, where both the private home and the headquarter and storage were located (Massana, 1985; Tatjer, 2006).

From the second half of the twentieth century, the increasing globalization of the economy meant that a set of multi-scalar processes affected garment-related industries. However, the textile industry and garment wholesaling adapted differently, consequently influencing the TGD's garment specialization. Focusing on the textile industry, the end of the Spanish Civil War (1936–1939) entailed the Franco dictatorship (1939–1975) developing a period of protectionism, hindering imports and exports. However, in the 1960s, the protectionism became more flexible, and the national government allowed the progressive entry of imports such as raw cotton through the implementation of law 1310/1963 of 1 June 1963. Law 1310/1963 aimed to support those textile manufacturing firms that wanted to import raw cotton to export a part of their finished products (Boletín Oficial del Estado, 1963). In this way, the national textile industry could gradually penetrate foreign markets, causing both an increase in its competitiveness and the stimulation of exports within the industry. In the same decade, the foreign competition and the obsolescence of production factors drove the national government to carry out a set of textile industry restructuring plans. The plans

lasted until the 1980s.¹⁵ The textile industry had to challenge a set of situations, such as the backwardness of its productive structures, the progressive openness of the national economy to international markets, and the ongoing competence of European and Asiatic countries (ACTE, 1998). Therefore, the restructuring plans aimed to transform the textile industry from a labor-oriented to a capital-based industry through four processes (ACTE, 1998; Gual *et al.*, 1991; Maluquer *et al.*, 1988): the modernization of production factors and introduction of new technologies (machinery, mainly); facilitating financial compensation to workers because of firms' closure; investment in intangible assets; and the amortization of surplus equipment. Restructuring plans led to a set of consequences. Firstly, there was a decrease in the number of workers. From 1971 to 1983, the percentage of Catalan textile industrial workers diminished by 38.73% (Maluquer *et al.*, 1988). Secondly, there was the adoption of vertical-integrated organization; and, thirdly, there was the focus on specialized demand markets, leaving the fashion market more and more aside (Gual *et al.*, 1991). However, the spatial consequences after the textile restructuring and, consequently, how they influenced the TGD's garment specialization have not been studied. Despite that, in the 1980s, the magazine *Noticiero Textil*, specializing in textiles, advertised the TGD as a clothing wholesaling center without mentioning headquarters (Figure 5.3). This seems to point to the closure of headquarters or a placement away from the TGD, and from Barcelona.

Despite knowing that the TGD became an important clothing wholesaling center during the second half of the twentieth century, there is a lack of general disaggregated statistical information about the evolution of the sector from a Catalan and national viewpoint. This fact does not allow to contextualize the TGD from the clothing wholesaling perspective. However, in the late 1980s and throughout the 1990s, the most significant landmarks in the sector were the emergence of fashion MNRs such as Inditex (Tokatli, 2008); the internationalization of brands; and the increased segmentation of demand (Fernie & Perry, 2013). The organizational structure of MNRs was based on control of the whole value chain. Where production was

¹⁵ They were mainly three (Maluquer *et al.*, 1988): the Restructuring of the Cotton Textile Plan (1969–1972) (*Plan de Reestructuración del Tejido de Algodón*, in Spanish), the Updating and Regulation of the Cotton Textile Sector Plan (1975–1981) (*Plan de Actualización y Regulación del Sector Textil del Proceso Algodonero*, in Spanish) and the Textile Restructuring Plan (1981–1986) (*Plan de Reconversión Textil*, in Spanish).

Figure 5.3 Garment wholesaling firms in the TGD, 1987



Source: own elaboration.

concerned, they outsourced diverse processes under keen supervision in order to control quality, costs, and delivery deadlines (Gual *et al.*, 1991). Despite the ongoing power of MNRs in the 1990s, a pool of SMEs still occupied a place in the fashion market. Fashion SME firms were supplied by clothing wholesaling firms. The TGD in the 1980s and 1990s became the most important national clothing wholesaling center, where a great many firms were concentrated (Noticiero Textil, 1988, 1989). Thus, the district specialized in the clothing wholesaling sector. One landmark that illustrates that situation was the emergence of the Arycasa Fashion Center. Arycasa was a former hotel located at the corner of Bruc Street and Ausias March Street. In 1977, the hotel closed and was converted into a fashion center. In 1987, the firm Center Trafalgar S.A acquired the building (La Vanguardia, 1987), holding more than a hundred wholesaling firms (Noticiero Textil, 1987). Arycasa became an important national wholesaling hotspot, where, for instance, training courses and tours for out-of-Catalonia retailers were also organized (La Vanguardia, 1984; M.P.C, 1984). On the other hand, other fashion shopping centers also emerged in the TGD, such as La Galería (Bruc Street, 21) and Centre Moda (Ausias March Street, 21), each home to more than fifty wholesaling firms (Noticiero Textil, 1989). The clothing wholesaling

sector was supplied by CMT firms located in Barcelona's metropolitan area (ACTE, 1998; Cámara Oficial de Comercio Industria y Navegación de Barcelona, 1970).

From the 1990s until the end of the 2000s, several important factors conditioned the TGD's economic evolution. Firstly, the 1992 Olympic Games saw the international projection of Barcelona. One of the consequences was tourism, Barcelona becoming an important international tourist destination (Casellas *et al.*, 2010; Duro & Rodríguez, 2015). However, Barcelona also attracted different immigrant collectives. The Chinese collective was very noticeable because of its entrepreneurial dynamism (Beltrán, 2009). In the 1990s, the TGD experienced a boom of Chinese entrepreneurs invested in the clothing wholesaling sector (Madueño, 1999). The introduction of Chinese investment into the TGD brought with it a set of problems (del Arco, 2007). Local entrepreneurs claimed that Chinese entrepreneurs brought unfair competition because they sold finished goods below the competitive price and brought a negative image to the district (Aymerich, 2003; Muñoz, 2001). Therefore, protests were conducted in order to pressure the local government to solve the great presence of the Chinese collective in the TGD (del Arco, 2007; Suñé, 2006). Secondly, the international economic crisis in 2008 had dramatic consequences for the TGD. The main effect was the ongoing decline of the clothing wholesaling specialization because of the closure of firms or their move to metropolitan cities. Finally, in 2008, local government decided to limit the presence of wholesaling firms in the TGD. The Wholesaling Trade Organizing Plan (*Pla Especial d'Ordenació dels Establiments Comercial Majoristes*, in Catalan) aimed to regulate the number of wholesaling firms' opening licenses in the district and surroundings. The main points of the law are two. First, new firms that surpass 400 square meters of size cannot receive an opening license. On the other hand, business size reform licenses are also prohibited as long as they exceed 400 square meters after the enlargement. Second, new opening licenses will be denied if a minimum of 100 meters between the new establishment and a pre-existing one is not respected. Both limitations hinder the opening of new wholesale establishments in the TGD.

The evolution of the TGD's garment specialization has been shaped by multi-scalar economic processes. The rise and disappearance of headquarters, the subsequent specialization in clothing wholesaling, the entry of Chinese investment, and the first

signs of the district's decline show that the TGD's evolution has been strongly influenced by international, national, and local economic processes. During the 2010s, the TGD's garment specialization declined almost entirely.

5.2.3 The post-crisis period: the decline of garment specialization, 2010–2018

The current TGD's clothing wholesaling specialization has disappeared considerably since the beginning of the 2010s. The financial and economic crisis that began in 2008 shocked the TGD, translating into the fast declining of firms. Despite that, there are surviving firms still dedicated to clothing and home linen wholesaling, and clothing manufacturing (Picture 5.1).

Chinese clothing wholesaling firms have either closed or moved to industrial parks located in Barcelona's MAB, particularly in Badalona (Picture 5.2) (Castán, 2016). These industrial parks offer better advantages than the TGD because there are fewer restrictions on loading and unloading, better accessibility to transport infrastructures, lower rents, and larger spaces for storage (Benvenuty, 2011; Congostrina, 2016).

Picture 5.1 Garment-related firms in the TGD: home linen and ready-to-wear wholesaling firm (Up-left); clothing workshops (Up-right and bottom-left); clothing showroom (Bottom-right)



Source: own elaboration.

Picture 5.2 Close of Chinese clothing wholesaling firms in the TGD and moved to Badalona



Source: own elaboration.

Despite the ongoing disappearance of clothing wholesale firms, the emergence of new economy-based firms oriented toward garments is reminiscent of the former specialization of the TGD. Examples include Dilo and Elena Hernández,¹⁶ devoted to the design of fashion window dressing and to fashion consultancy, respectively; B-Come studio, a sustainability-based clothing retailer and fashion consultant; Casa Ballester, an atelier devoted to the production of mannequins for design schools and high-fashion retailers; and Begemot Art & Fashion Gallery, an art gallery where art and fashion converge.

The above-mentioned instances highlight a change in the economic structure of the district. The ongoing disappearance of garment-related firms is leaving empty business spaces, which are being occupied by knowledge-based and creativity-based firms. Therefore, the TGD is experiencing a shift from a specialized to a diversified economic space.

5.3 From specialization to diversification: the present economic landscape, 2010–2018

The current TGD has experienced a rapid transformation in its economic landscape from a clothing wholesaling specialization to a more diversified economic space. The

¹⁶ During the development of the dissertation, the firm left the TGD and moved to Madrid.

TGD's main economic transformation follows the pattern of Hutton's previous studies (2004, 2008). Thus, economic changes are based on three axes. First are knowledge-based and creativity-based firms and tourism. Hutton highlights knowledge and creativity as the main economic activities that characterize NICs. However, in the case of Barcelona, it is important to take into account tourism because of its importance within the city's economy for the last ten years or so. Second is the conversion of residences into condominiums by the real estate sector. Third are cultural and environmental amenities. The interrelationship between the three axes means that the TGD is experiencing an economic transformation entailing a makeover, considering the district as the new Soho of Barcelona (Shank, 2017).

5.3.1 Knowledge, creativity and tourism: a new economic structure

The economic and financial global crisis, initiated in the second half of the 2000s, greatly affected the TGD's garment specialization, causing either the closure of firms or their displacement to other locations in the MAB (Benvenuty, 2010). As a consequence, the TGD has progressively encompassed activities based on knowledge and creativity, and tourism.

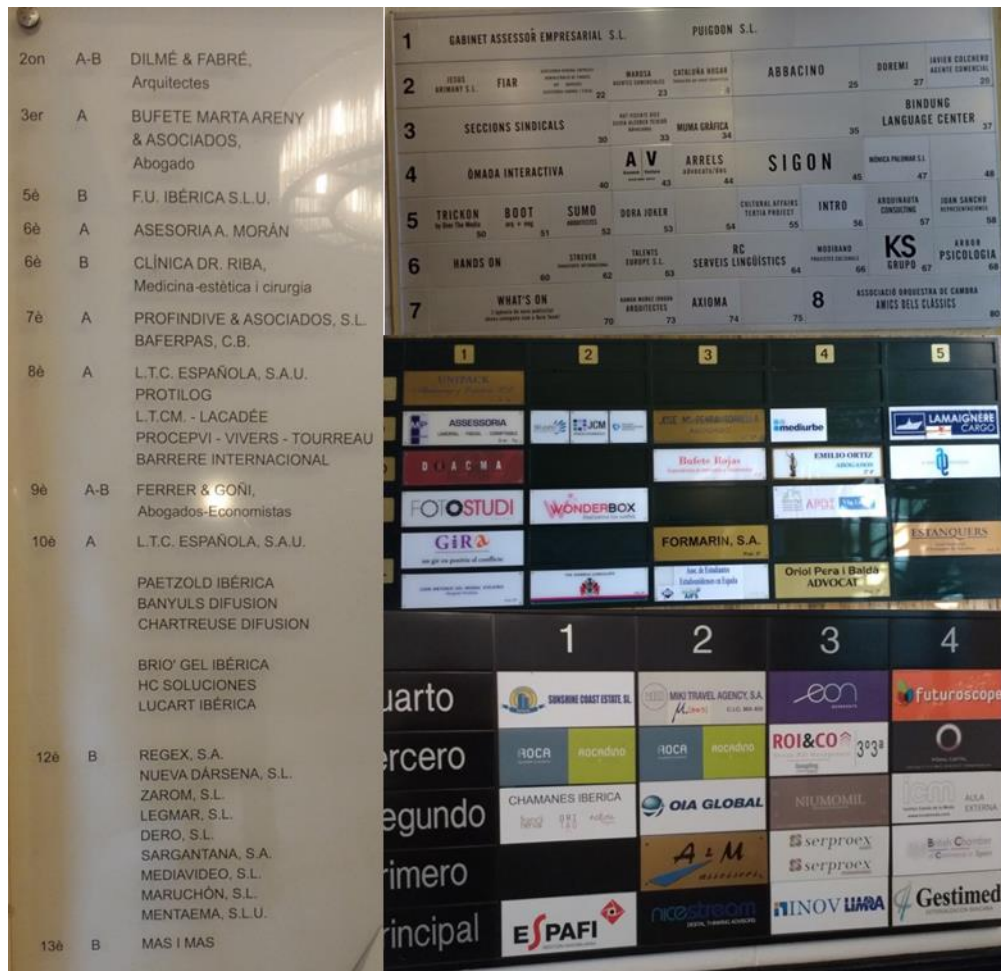
Centering on knowledge and creativity, the change of the Barcelona's policy to a knowledge-based economy contextualizes the economic transformation of some inner urban spaces within the city. The 22@Barcelona project (2000) (Dot Jutgla, 2015) aimed at the socioeconomic revitalization of the Poblenou neighborhood (a 200 ha former industrial urban space) through the creation of five clusters (media, TIC, TecMed, energy, and design) based on the new economy (Ajuntament de Barcelona, 2000, 2006). Despite the fuzziness of the project and the associated social and functional gentrification processes (Casellas & Pallares-Barbera, 2009; Dot Jutgla, 2015), 22@Barcelona has launched the city into the higher echelons in the hierarchy of global cities, Barcelona becoming an attractive destination for investments (Expansión, 2018; Galtés, 2017; La Vanguardia, 2018b). This situation is also a consequence of the development of first-order projects related to technology and innovation, such as a 5G technological lab, a 3D printing hub, or the arrangement of projects to become a

scientific hub (El Periódico, 2018; Roig, 2018; Suñé, 2018a, 2018b). Besides that, the arrangement of international conventions and fairs plays a key part in the city's marketing. Some of these are related to new technologies (Mobile World Congress, Smart Cities Expo World Congress, Barcelona Blockchain Week), knowledge and creativity (Barcelona Design Week), and culture (World Press Photo, OFFF Barcelona, Barcelona International Comic Fair, Barcelona Games World, Primavera Sound, Sónar), among others. Thus, Barcelona has become part of an innovative milieu attracting multinational firms (Facebook, Amazon, Microsoft, IGG) (Berengueras, 2018; Galtés, 2016, 2018; La Vanguardia, 2018a), along with knowledge-, ICT-, and creativity-based SMEs and start-ups (Galtés, 2017), causing a change in the economic landscape of some of the city's neighborhoods. This context helps to understand the new TGD economic landscape.

Most of the knowledge- and creativity-based firms in the TGD are situated in office buildings' numerous floors (Picture 5.3). The location of leading firms in their respective sectors highlights the current attractiveness of the TGD. Some significant examples are El Terrat and Digital Legends. The former is an important Catalan audiovisual production firm located in Bailén Street and managed by Andreu Buenafuente, a national well-known comedian. The new offices are called Bailén 20, with reference to the name of the street. Digital Legends is related to ICT-intensive use and the videogame industry. Headquarters are located in Bruc Street and is considered a leading-edge firm in the sector because of the development of 3D videogames for mobiles. Other examples of knowledge- and creativity-based firms are Ites, Labcoop, or Violan Studio: the first is an important sound and image private school; the second refers to a social economy-based cooperative that encourages similar small firms; and the third is the office of Lázaro Rosa-Violán, a nationally well-recognized interior designer.

Knowledge- and creativity-based firms are located not only on buildings' many floors, but also in CWs. The CW phenomenon in Barcelona started at the end of the 2000s (Capdevila, 2013) locating in central urban spaces (Coll-Martínez, 2019). L'Eixample and, particularly, *Dreta de l'Eixample* is one of the main urban areas where they concentrated (Capdevila, 2015; Institut Cerdà & AMB, 2019). Currently, there are a

Picture 5.3 Office buildings in the TGD



Source: own elaboration.

total of seven CWs in the TGD, in which freelancers, remote workers, and small firms are concentrated. According to the location, they take advantage of large premises (on the ground and underground level) which were formerly devoted to manufacturing or storage (Picture 5.4). On the other hand, CWs are also situated on the buildings' upper floors. This is the case of Aticco, which is located in a building previously dedicated to social courts in Ronda Sant Pere Street. At the end of the 2000s, all courts located throughout Barcelona moved to a specific urban plot in the metropolitan area, leaving the buildings empty. Aticco has taken advantage of this, occupying several floors of the same building (almost 8000m² in total) (Ejeprime, 2019). Finally, there are CWs oriented to different issues. One example is Happy Milk, a space dedicated to mothers,

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where they can combine work and care of their children. Then there is Barcelona Food Makers, where entrepreneurs devoted to cuisine take benefit of all the kitchen facilities to prepare their own dishes.

Picture 5.4 Co-workings in the TGD



Source: own elaboration.

One of the consequences of the concentration of knowledge- and creativity-based activities was the arrangement of a collaborative project called Zone 11 (*Zona 11*, in Catalan). Zone 11 was the result of a partnership involving firms and local government. The main aim of the Zone 11 project was to enhance the TGD as the new creative urban space in the Eixample district, strengthening the social economy, creativity, training, and culture. Through the project, the local government wanted to change the image of the TGD as a warehousing and wholesaling urban space with *“bad lighting, little traffic of people during the weekend or an excess of empty premises”* (Ajuntament de Barcelona, 2014a) to a more active and attractive one. The private firms involved in the project were art and culture schools (Eòlia, ECIB, and Ites) business schools (ESERP Business School), co-workings (Labcoop and MOB), specialized retailers (Kaburi, Norma Comics, Abacus), book publishers (Octaedro), and the Economic Office of the Eixample District as the main public agent in the project’s coordination. Despite the ongoing growth of knowledge- and creativity-based firms, the Zone 11 project has now totally stopped.

Centering on the tourism sector, Barcelona is positioned internationally as one of the most important tourist destinations (Duro & Rodríguez, 2015), entailing the rise of the

lodging sector. This process is reflected in the local government's tourism policy. The Establishments for great Audiences, Lodging Industry and other Old City's Activities Special Plan (2013) (*Pla d'Establiments de Concurrencia Pública, Hoteleria I Altres Activitats a Ciutat Vella*, in Catalan) modified an earlier one approved in 2010. In both plans, Trafalgar Street is situated in the ZE-11 zone, which corresponds to Ciutat Vella's borders.¹⁷ In the earlier 2010 plan, the main conditions for receiving a license for opening a new hotel, hotel apartment, and tourist apartment (in the H category) were mainly that the new establishment must not be within a radius of 100 meters of a firm in the same category, and that, if someone owns a license for any establishment in category H in the Ciutat Vella district and wants to obtain a new license to open another establishment in the ZE-11 zone, the previous one must be canceled. The later 2013 plan reduces the restrictions: firstly, the new establishment must occupy the whole building; secondly, the maximum number of beds is 200; and thirdly, the maximum surface devoted to accommodation must not exceed 60% of the whole building. Therefore, the later plan supersedes both limitations of the previous plan, allowing the granting of licenses without taking into account the location of the new establishment or the number of licenses of the applicant. The direct consequence in the TGD of this relaxation of the rules was the building of two luxurious hotels by the firm Yurbban in Trafalgar Street in 2014 and 2018 (Picture 5.5). The two hotels are side by side, and they have become the standard-bearers of the upscaling and change in the neighborhood's image, bringing revitalization and modernity (Jorro, 2016). One of them occupies the Passatge de les Manufactures that connects Trafalgar Street to Sant Pere més Alt Street in Sant Pere. In the nineteenth century, this passage was devoted to small manufacturing firms and, in the twentieth century, to garment wholesaling. In recent years, the passage has become a deprived space almost without economic activity. Hence, the lodging investment has revitalized the urban space and the whole building, keeping its original façade (Picture 5.6).

¹⁷ The Old City's street borders are Passeig Colom, Drassanes, Avinguda del Paral·lel, Ronda Sant Pau and Sant Antoni, Pelai Street, Fontanella Street, and Trafalgar Street.

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Picture 5.5 Yurbban hotels in Trafalgar Street



Source: own elaboration.

Picture 5.6 Manufacturing Passage before the building of the hotel (left) and after (right)



Source: own elaboration.

Currently, the boom in legal and illegal apartments for tourist use and Airbnb accommodation has led the local government to take important controlling measures. In 2017, the local government approved the Urban Special Plan for Tourist Accommodation (*Plan Especial Urbanístico de Alojamiento Turístico* (PEUAT), in Spanish) to manage the dramatic rise in tourist apartments in Barcelona, from 632 in 2010 to 9,606 in 2014 (Ajuntament de Barcelona, n.d.).

Tourist apartments *“are those given by their owner, directly or indirectly, to third parties, repeatedly and in exchange for an economic consideration, for a seasonal stay”* (Ajuntament de Barcelona, n.d.). The plan’s aims are to reduce touristic pressure, to mitigate the uneasiness of inhabitants, to look for sustainable tourism, and to guarantee access to a house by the city’s inhabitants (Ajuntament de Barcelona, 2017). The law divides Barcelona into four zones related to the number of lodging establishments. The TGD is framed within zone 1, which also encompasses the old city, a large part of the Eixample, Gràcia, and Sant Martí districts. This zone includes 60% of Barcelona’s supply of accommodation. The main restriction is that licenses for new tourist apartments are forbidden in order to mitigate their presence and to decentralize to other parts of the city.

5.3.2 The real estate sector

The real estate sector is also conditioning the socioeconomic landscape of the TGD. The TGD, like the rest of Barcelona, is experiencing the acquirement of whole buildings, currently devoted to residences or offices, by national and international real estate firms. The main aim is to convert them into luxury condominiums. Throughout the 2010s, Barcelona experienced an increase in private investments in condominiums (La Vanguardia, 2014) famously affecting the Eixample district and causing a rise in prices (Pauné, 2017).

There are some examples of this in the district. The conversion of buildings into high-class condominiums is reflected in the best-known cases of Sert and Casa Burés. Sert was a textile factory located in Trafalgar Street in the nineteenth century. Currently, it is devoted to luxurious loft apartments (Palarea, 2004). Casa Burés is a modern building dating from the beginning of the twentieth century and functioned as a textile headquarters. The building was the property of the Catalan Government and was sold to Europe Capital Partner, an English multinational real estate company, for conversion into luxury condominiums (Palomar, 2015). However, Casa Burés is not the only acquisition in the district by Europe Capital Partner. A building devoted to social courts and another in Casp Street have been also converted into high-class residences

(Anglés, 2015). Although the property acquisitions by Europe Capital Partner are the most significant, there are also a number of buildings in the district undergoing the same process with other real estate firms. The increase in luxury apartments is causing disagreement with civil associations that stress the social change in the neighborhood and seek to reclaim empty buildings for social purposes (Palomar, 2015).

5.3.3 Cultural and environmental amenities: new patterns of consumption

The third aspect of the present TGD is the emergence of cultural and environmental amenities through a range of specialized retail firms and the upgrading of public spaces. Regarding cultural amenities, there are four main differentiated groups. The first group concerns those establishments related to the Freaky Triangle. The Freaky Triangle is a space within the TGD and its surroundings formed by firms related to comics, videogames, science fiction, board games, and related articles. The Freaky Triangle was born at the beginning of the 1980s with the location of Norma Comics and Gigamesh¹⁸ (Ajuntament de Barcelona, 2014b). Nowadays, the Freaky Triangle is formed by 23 establishments (Figure 5.4) and it has become an important stop for lovers of the science fiction, anime or fantasy genres among others.

The second group is art galleries. The increase in rents in their former location in Consell de Cent Street (in the Eixample district) (Rius-Ulldemolins, 2012) is forcing art galleries to look for new urban spaces with lower rents (de España, 2015; Mercader, 2016). The TGD has become an optimal urban space for its location, because of its centrality and the availability of large premises:

“Our gallery [Senda Gallery] needed another space. Trafalgar offered us everything: a central location, transport connections with the whole city and newer spaces with great personality. Plus the area has a textile heritage. Two energies come together here—Sant Pere below us, with its theatres and dance, and the Eixample just above.” (Shank, 2017: n.d)

The art galleries of the TGD do not all share the same style. Some are oriented to independent artists (Mutuo and Haimney) and others are also art schools (Nómada

¹⁸ In addition to being specialized retailers, Norma Comics and Gigamesh are two of the most important publishers in Spain.

Figure 5.4 Location of establishments within the *Freaky Triangle*



Source: own elaboration.

Studio). On the other hand, there are galleries that offer a new, different concept combining art and fashion or, more oriented to antique art (Begemot Art & Fashion and Artur Ramon Art, respectively) (Picture 5.7). The third group is related to bars and restaurants. The growth of fancy and trendy food and drink establishments is a signifier of the district's landscape change. A significant instance is Flax & Kale, which has settled in the Passatge de les Manufactures. In 1979, Flax & Kale opened as the first vegetarian restaurant in Barcelona. Nowadays, it is in an avant-garde and upscaling restaurant, locating in other urban spots such as the El Raval neighborhood (its first location) and the luxurious commercial street Passeig de Gràcia. Thus, Flax & Kale has taken advantage of the architectural transformation of the Passatge de les Manufactures to become a major player in the district's makeover. Another instance is the firm Balcastro Eat & Experience, owner of three more restaurants in the TGD. Then there is Casa Rafols, located in a two-level 500m² former hardware store in Trafalgar Street.

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Picture 5.7 Art galleries in the TGD



Source: own elaboration.

The last group is related to hand-craft or neo-artisanal production firms. Although its presence has not reached the level of importance of the first three groups, it has experienced a continuous increase in the district. These firms are focused on a set of different activities such as pottery, painting framing or fashion mannequins.

Regarding environmental amenities, the TGD benefits from the closeness of one of the most important parks in Barcelona, La Ciutadella, near the Arch of Triumph. However, the transformation of the Passeig de Sant Joan has been an important element in improvement of the district's public space. The project is based on the reurbanization of the boulevard into a 'green corridor', upgrading the public space by reducing automobile space and increasing green spaces, cycle paths, and playgrounds. This revitalization has given rise to an increase in rent prices (Bosch, 2018) and the blossoming of food and beverage establishments, entailing an increase in the number of terraces. Consequently, the local government lead its reorganizing through specific laws (Ajuntament de Barcelona, 2015).

Another project based on upgrading of the public space is the project on Girona Street and its surroundings. Girona Street begins in the TGD and finishes in Gràcia district.

Despite the project not yet being implemented, the local government has cancelled licenses to open new businesses with the aim of accurately analyzing the economic situation of this urban space (Ajuntament de Barcelona, 2019a). The main objective of the project is to diversify the economy of the Girona Street economy, which was slowly specializing in food and beverages, and to pedestrianize the public space (Savall, 2016).

5.4 Summary

The present chapter has highlighted some important facts. First, the important role of Sant Pere in order to understand the emergence of the TGD. In the eighteenth and nineteenth centuries, textile factories located in Sant Pere in order to take advantage of a set of inputs. In the eighteenth century, the water resources (Rec Comtal) attracted factories that manufactured Indianas because they were specialized in dyeing and washing processes. However, during the nineteenth century, the emergence of diseconomies of scale in Sant Pere forced textile factories to move to proximal villages and to watersheds in order to look for larger spaces, lower labor costs and cheaper energy costs. However, headquarters along with storages remained in Sant Pere.

One of the most important factors in the new location of the Barcelona's industry was the building of the Eixample since 1859. The configuration of new urban spots conditioned the moved of headquarters along with their storages to urban adjacent areas from Sant Pere, being the initial sparks of the TGD. However, the configuration of the TGD cannot be understood without the role of transport infrastructures. The proximity to the Estacio de França was crucial to connect the headquarters with their own factories located in the watersheds. By this manner, they could exchange raw materials and finished goods. Thus, the textile industry split spatially into a clerical and logistic, on one side, and the manufacturing, on the other side.

In the twentieth century, a set of economic processes conditioned the evolution of the TGD. In the first half of the century, the progressively concentration of headquarters in the district entailed the first sparks of the garment cluster. However, since the second half and until the end of the century, the TGD experienced a great transformation. The industrial restructuring, the entrance of Spain into the European Union and the

Chapter 5. The Trafalgar Garment District. Geographical aspects in the economic and historical evolution

increase competition of foreign countries caused the decline of the textile industry, the loss of competitiveness and the decrease of firms. Nevertheless, until the end of the century, the TGD became the most important clothing wholesaling center in Spain attracting a great domestic demand. This fact also attracted Chinese entrepreneurs, which started to open clothing wholesaling firms. On the other hand, the progressively power of MNRs in the fashion industry and trade and a limited policy by the local government for restrict the number of clothing wholesalers are factors that have condition the positive evolution of the TGD.

In the twenty-first century, the economic crisis in 2008 caused a decline in the specialization of the TGD in the clothing wholesaling sector. The close of firms or the move to other urban spot within the MAB is significant. This fact causes the emptiness of premises. However, knowledge- and creativity-based firms are renting those business spaces. The Barcelona policy to a knowledge-based economy entails the attraction of multinationals or start-ups related to a set of new economy sectors such as design, programming, videogames, etc. These firms located in specific urban spots changing its economic structure. One of them is the TGD. On the other hand, new economic spaces related to the new economy are emerging such as CWs. The TGD comprises seven CWs located in former industrial spaces or in building devoted to social courts. The relaxation of the rules allowed to build new hotels in the Trafalgar street emerging two important hotels. These hotels are contributing to change the image of the district to a trendy urban area.

The real estate sector has also an important role in the economic change of the TGD. The acquirement of several buildings by foreign real estate firms for devoting to condominiums is also changing the image of the district. However, civil associations disagree of the new function of those buildings.

Finally, the cultural and environmental amenities are the last piece in order to understand the current TGD. In relation to cultural amenities, we can distinguish four types: the Freaky Triangle, art galleries, trendy and upscale bars and restaurants and neo-artisanal production firms. Concerning environmental amenities, we can remark the Passeig de Sant Joan or the proximity of green public spaces such as La Ciutadella.

On the other hand, there is a project to pedestrianize of the Girona street. However, it has not been carried out by the local government.

In sum, the TGD has experienced a dramatic economic change. First, the district configured as a garment cluster concentrating headquarters. Then, the TGD transformed into a clothing wholesaling center. Currently, the TGD is characterized by an economic diversification based on knowledge, creativity and tourism-based activities. On the other hand, the real estate sector, the growth of specialized firms and the upgrading of green public spaces contribute to the economic change of the district.

CHAPTER 6 THE CONFIGURATION AND EVOLUTION OF THE TRAFALGAR GARMENT DISTRICT

The present chapter depicts the results of the dissertation in two parts. The first part focuses on the TGD as a garment cluster. Results depict three main facts: firstly, the strong relationship between the TGD and Sant Pere; secondly, the ongoing spatial concentration of garment-related activities in the TGD in the first half of the twentieth century and its decline since the second half; and thirdly, the cluster dynamics and the spatial role of the TGD within the textile industry. The second part refers to the TGD as an NIC. Results highlight three facts: firstly, the TGD's transition from a specialized to a diversified economic structure, knowledge-, creativity-, and tourism-based firms being the most important; secondly, the role of CWs in the building of knowledge and information linkages within the district; and thirdly, the current relationship between the new TGD and the rest of Barcelona.

6.1 The Trafalgar Garment District as an urban garment cluster, 1900–2018

6.1.1 Sant Pere's textile industrial neighborhood: the seed of the Trafalgar Garment District, 1850–1900

The role of Sant Pere in the origin of the TGD is essential. Since the 1850s, despite the continuous relocation of factories to nearby villages, textile manufacturing, garment wholesaling trade, and intermediate firms continued to locate in the walled city. Table 6.1 depicts the economic structure of each Ciutat Vella neighborhood in 1857. Regarding textile manufacturing, weaving firms make up the highest percentage in each neighborhood (54.98% in Raval, 58% in Gòtic, and 64.29% in Sant Pere, La Ribera i Santa Caterina). However, in second position, results vary. Raval has a high percentage of spinning firms (26.07%), while in Gòtic and Sant Pere, La Ribera i Santa Caterina

there are more scouring (14.00%) and printing (18.45%) firms, respectively. In the case of garment wholesale trade and intermediate activities, Raval and Gòtic have a high percentage of brokers (61.11% and 62.50%, respectively), while in Sant Pere, La Ribera i Santa Caterina there is more garment wholesaling (61.97%). Finally, the number of firms involved in both manufacturing and trade activities is insignificant.

Table 6.1 Number and percentage of garment-related firms in each *Ciutat Vella's* neighborhoods in 1857

Firms		<i>El Raval</i>		<i>Gòtic</i>		<i>Sant Pere, La Ribera i Sta Caterina</i>	
			%		%		%
Manufacturing activities	Scouring	11	5,21	7	14,00	12	7,14
	Printing	14	6,64	2	4,00	31	18,45
	Spinning	55	26,07	6	12,00	9	5,36
	Weaving	116	54,98	29	58,00	108	64,29
	Printing + Scouring	0	0,00	0	0,00	1	0,60
	Spinning + Printing	1	0,47	0	0,00	1	0,60
	Spinning + Weaving	12	5,69	5	10,00	4	2,38
	Spinning + Weaving + Printing	2	0,95	1	2,00	0	0,00
	Weaving + Scouring	0	0,00	0	0,00	1	0,60
	Weaving + Printing	0	0,00	0	0,00	1	0,60
Total		211	100,00	50	100,00	168	100,00
Trade and intermediate activities	Brokers	11	61,11	30	62,50	27	38,03
	Garment wholesaling	7	38,89	18	37,50	44	61,97
	Total	18	100,00	48	100,00	71	100,00
Manufacturing and trade activities	Weaving Wholesaling	1	20,00	0	0,00	0	0,00
	Spinning Wholesaling	2	40,00	0	0,00	1	25,00
	Printing + Wholesaling	0	0,00	0	0,00	1	25,00
	Scouring + Wholesaling	0	0,00	0	0,00	1	25,00
	Weaving + Broker	1	20,00	0	0,00	0	0,00
	Spinning + Broker	1	20,00	0	0,00	0	0,00
	Printing + Broker	0	0,00	0	0,00	1	25,00
	Total	5	100,00	0	0,00	4	100,00

Source: own elaboration.

In order to deepen the spatial patterns of garment-related activities, Table 6.2 reveals the spatial distribution of firms in the three neighborhoods in 1857. Concerning manufacturing activities, spinning is concentrated mainly in Raval (78.57%), while scouring and printing cluster in Sant Pere, La Ribera i Santa Caterina (65.96%). In the case of weaving, Raval and Sant Pere, La Ribera i Santa Caterina show similar values (45.85% and 42.69%, respectively). Thus, the two neighborhoods are the two main textile manufacturing centers. In the case of trade activities, brokers are concentrated

mainly in Gòtic (44.12%), although Sant Pere, La Ribera i Born also has a high value (39.71%). On the other hand, Sant Pere, La Ribera i Santa Caterina shows the highest value for garment wholesaling (63.77%). Therefore, Sant Pere, La Ribera i Santa Caterina has become not only in an important manufacturing hotspot, but also a remarkable commercial center.

Table 6.2 Spatial distribution of garment-related firms in the Old City's neighborhoods, 1857

	Firms	<i>El Raval</i>	%	<i>Gòtic</i>	%	<i>Sant Pere, La Ribera i Sta Caterina</i>	%	Total	%
Manufacturing activities	Scouring	11	36,67	7	23,33	12	40	30	100
	Printing	14	29,79	2	4,26	31	65,96	47	100
	Spinning	55	78,57	6	8,57	9	12,86	70	100
	Weaving	116	45,85	29	11,46	108	42,69	253	100
	Printing + Scouring	0	0,00	0	0	1	100	1	100
	Spinning + Printing	1	50,00	0	0	1	50,00	2	100
	Spinning + Weaving	12	57,14	5	23,81	4	19,05	21	100
	Spinning + Weaving + Printing	2	66,67	1	33,33	0	0	3	100
	Weaving + Scouring	0	0,00	0	0,00	1	100	1	100
	Weaving + Printing	0	0,00	0	0,00	1	100	1	100
	Total	211	49,18	50	11,66	168	39,16	429	100
Trade activities	Brokers	11	16,18	30	44,12	27	39,71	68	100
	Garment wholesaling	7	10,14	18	26,09	44	63,77	69	100
	Total	18	13,14	48	35,04	71	51,82	137	100
Manufacturing and trade activities	Weaving + Wholesaling	1	100	0	0	0	0	1	100
	Spinning + Wholesaling	2	66,67	0	0	1	33,33	3	100
	Printing + Wholesaling	0	0	0	0	1	100	1	100
	Scouring + Wholesaling	0	0	0	0	1	100	1	100
	Weaving + Broker	1	100	0	0	0	0	1	100
	Spinning + Broker	1	100	0	0	0	0	1	100
	Printing + Broker	0	0	0	0	1	100	1	100
	Total	5	55,56	0	0	4	44,44	9	100

Source: own elaboration.

These results coincide with acknowledgements that the El Raval neighborhood has become an important textile district (Gutiérrez Medina, 1997; Raveaux, 2005). In the case of Sant Pere, La Ribera i el Born, the printing tradition seems to be descended from the former specialization of the Indianas factories, resulting in a lingering industrial atmosphere.

Since 1859, the urban development of the Eixample, designed by Ildefons Cerdà (1815–1876) (Pallares-Barbera *et al.*, 2011) has been an important fact in the emergence of a new model of Barcelona’s industrial urbanism, and consequently in the appearance of the TGD. Between 1861 and 1899, the Eixample saw the highest percentage of new builds (20.62%), only surpassed by new constructions in the Ciutat Vella (26.30%) (Table 6.3).

Table 6.3 Number of built buildings by district between 1861 and 1899.

Districts	1861-1899	
	Number	Percentage
<i>Ciutat Vella</i>	825	26,30
<i>Eixample</i>	647	20,62
<i>Sants</i>	457	14,57
<i>Les Corts</i>	26	0,83
<i>Sarria</i>	150	4,78
<i>Gràcia</i>	404	12,88
<i>Horta</i>	59	1,88
<i>Nou Barris</i>	27	0,86
<i>Sant Andreu</i>	204	6,50
<i>Sant Martí</i>	338	10,77
Total	3137	100,00

Source: own elaboration from Spanish cadastre.

However, focusing on the urban development of the Eixample by neighborhood, there has been uneven progress (Table 6.4). The Dreta de l'Eixample showed the highest percentage of new builds (48.69%), which were mainly occupied by high-class residents (Fabre & Huertas, 1977). However, the TGD was home to 10.66% of the city’s total buildings, a percentage higher than that of some entire neighborhoods, such as Fort Pienc, Sagrada Família, or Nova Esquerra de l'Eixample. This highlights that the TGD encompassed a large proportion of the first buildings in the new city, which were characterized by a higher quality than the rest of the Eixample (Garcia Espuche, 1990). Regarding the internal features of buildings, those with underground levels offer possible storage spaces. The highest percentage of buildings with one underground level is located in the Dreta de l'Eixample (78.23%), while the TGD houses 22.58% of the total in Barcelona. From the second half of the nineteenth century, those textile headquarters which remained in the Ciutat Vella moved gradually to the incipient TGD. The main advantages of the new urban space were the existence of larger spaces

for storage and fewer problems related to congestion, because of their wider public spaces.

Table 6.4 Number of built buildings according to underground levels by *Eixample's* neighborhoods between 1861 and 1899

Neighborhoods	Built buildings	%	No underground levels	%	One underground level	%
<i>Sant Antoni</i>	129	19,94	108	20,65	21	16,94
<i>Nova Esquerra Eixample</i>	9	1,39	8	1,53	1	0,81
<i>Antiga Esquerra Eixample</i>	121	18,70	118	22,56	3	2,42
	315	48,69	218	41,68	97	78,23
<i>Dreta Eixample</i>	TGD	69	41	7,83	28	22,58
		(21,90) ^a		(18,81) ^a		(28,87) ^a
<i>Fort Pienc</i>	30	4,64	28	5,35	2	1,61
<i>Sagrada Família</i>	43	6,65	43	8,22	0	0
Total	647	100	523	100	124	100

^aData in brackets correspond to the percentage of building related to the *Dreta de l'Eixample's* total number of buildings.

Source: own elaboration.

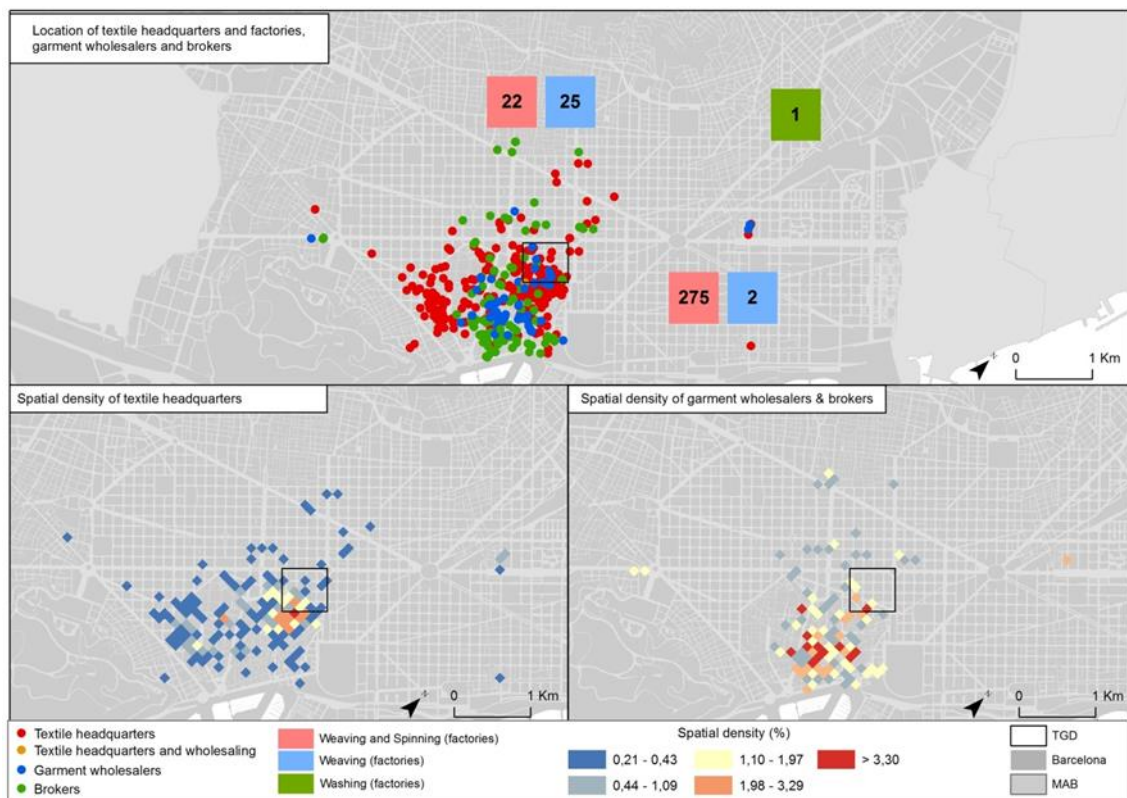
Headquarters, which dedicated to different production processes (Table 6.5), started to move to the edge of the TGD and Sant Pere, particularly Trafalgar Street and Ronda Sant Pere Street (Figure 6.1). The percentages of spatial density highlight that this urban plot generally reached values between 1.10% and 3.29% and, in some places, more than 3.30%. Thus, both streets may be considered transitional zones between the TGD and Sant Pere. In the case of garment wholesalers and brokers, they remained on the south side of Gòtic and Sant Pere, La Ribera I Santa Caterina. However, it is worth highlighting some grids with medium and high values on the south border of the TGD. These results may show the early stages of the TGD's consolidation as an urban garment cluster. This process strengthened in the next century with the concentration of headquarters and garment wholesaling firms in the space, bringing economic implications on an urban and regional scale.

Table 6.5 Production process of each textile-related headquarter in the TGD in 1887

Textile production process	TGD
Weaving	35
Spinning	12
Scouring	1
Printing	5
Weaving + Spinning	7
Weaving + Spinning	1
Weaving +Spinning + Scouring	1
Total	62

Source: own elaboration.

Figure 6.1 Location of textile headquarters and factories, textile warehouses and brokers in Barcelona (top); Percentage of textile headquarters per hectare (bottom left) and textile warehouses and brokers (bottom right) in Barcelona, 1887



Source: own elaboration from Bailly-Bailliere, 1887.

6.1.2 Spatial density and cluster analysis of garment-related activities, 1900–2016

The section is divided into two periods of time. The first ranges from 1900 to 1954, where garment-related activities progressively concentrated in the TGD. The second

period ranges from 1955 to 2016, where results highlight the ongoing decline of, first, headquarters, and later clothing wholesaling firms.

The results for spatial density are presented through a concentric rings model that covers Barcelona (Figure 6.2). Each ring comprises a set of urban areas. The 0–300 meters ring frames the TGD. The 351–1,000m ring almost entirely consists of the Sant Pere, La Ribera i Santa Caterina neighborhood, the north side of the Gòtic, and some important urban spots of l'Eixample, such as Passeig de Gràcia. The 1,001–2,000m ring includes the rest of the Ciutat Vella district, and historical industrial districts such as the south side of Gràcia and part of the Sant Martí district. The 2,001–3,000m ring contains the rest of the previous industrial districts, and includes others such as Sant Andreu. The 3,001–4,000m ring encompasses the Sants district, another historical industrial district, and both high-class (north-west) and working-class (north-east) urban plots. Finally, the 4,001–6,000m, 6,001–8,000m and 8,001–10,000m rings include residential uses. They also comprise high-class and working-class urban plots.

Figure 6.2 Rings concentric model



Source: own elaboration.

1900–1954: the configuration of the garment cluster

Throughout the twentieth century until today, garment firms have experienced different urban location patterns in Barcelona. However, in the first half of the twentieth century, the TGD comprised high percentages of these firms. Based on a concentric rings model with the TGD as the center, headquarters' highest percentages tend to concentrate in the district (0–300m) in the three years 1916 (54.52%), 1934 (49.63%), and 1954 (44.52%) (Table 6.6). These results are consistent with previous studies that highlighted the concentration of textile headquarters in this specific urban area (Carreras, 1993; Tatjer, 2006, 2010). Despite the percentage of headquarters in Barcelona decreasing yearly, the highest values remained in the district, diminishing as distance from the TGD increased. Another pattern to observe is that in 1934 and 1954, the percentages in the TGD's adjacent rings (301–1000m and 1001–2000m) gradually grew. This increase may be explained by the overcrowding of firms in the district and the need to move to its surroundings in order to benefit from agglomeration economies.

Regarding factories, their location in the outer rings responds to the historical move to traditional industrial neighborhoods. Previous studies underscore the importance of districts such as Gràcia, Sants, Sant Martí, or Sant Andreu as centers of textile manufacturing at the beginning of the twentieth century (Cabana, 2001; Enrech, 2003; Oliveras i Samitier, 2013). However, in 1934 and 1954, the number of factories decreased. Some authors relate this process to the diversification of the economy (Oliveras i Samitier, 2013) and the displacement of textile factories to the watersheds as a strategy to reduce energy costs (Enrech, 2003).

Concerning garment wholesaling and CMT firms, both experienced dramatic growth between 1916 and 1954 (733.33% and 208%, respectively). Some of the main causes might be related to the increase of ready-to-wear retailing because of the growth of both consumption and the female labor force (Participación de las industrias de la confección en la XIV Feria Oficial e Internacional de Muestras en Barcelona, 1946). However, the intra-urban location of the two activities is different. The TGD does not harbor the highest values of garment wholesaling in this period. However, the next

ring (351–1000m) does, reaching 48.48% in 1916, 42.59% in 1934, and 46.91% in 1954. Although there is no information in the literature about the reasons for the garment wholesaling trade’s intra-urban location patterns, results show its preference to be close to the TGD.

Table 6.6 Number and percentage of garment-related firms by concentric ring in Barcelona in 1916, 1934 and 1954

	Meters from the TGD	Headquarters		Textile factories		Garment Wholesaling		CMT	
		Number	%	Number	%	Number	%	Number	%
1916	0 – 350	193	54,52	1	0,92	15	45,45	18	36,00
	351 – 1000	124	35,03	4	3,67	16	48,48	13	26,00
	1001 – 2000	26	7,34	35	32,11	2	6,06	15	30,00
	2001 -3000	10	2,82	51	46,79	0	0,00	4	8,00
	3001 – 4000	0	0,00	8	7,34	0	0,00	0	0,00
	4001 – 6000	1	0,28	9	8,26	0	0,00	0	0,00
	6001 – 8000	0	0,00	1	0,92	0	0,00	0	0,00
	8001 - 10000	0	0,00	0	0,00	0	0,00	0	0,00
	Total	354	100	109	100	33	100	50	100
1934	0 – 350	201	49,63	0	0	18	33,33	14	4,88
	351 – 1000	155	38,27	0	0	23	42,59	78	27,18
	1001 – 2000	39	9,63	9	23,08	12	22,22	150	52,26
	2001 -3000	7	1,73	16	41,03	1	1,85	20	6,97
	3001 – 4000	2	0,49	7	17,95	0	0,00	17	5,92
	4001 – 6000	1	0,25	7	17,95	0	0,00	8	2,79
	6001 – 8000	0	0,00	0	0,00	0	0,00	0	0,00
	8001 - 10000	0	0,00	0	0,00	0	0,00	0	0,00
	Total	405	100	39	100	54	100	287	100
1954	0 – 350	187	44,52	0	0,00	80	29,09	14	9,09
	351 – 1000	167	39,76	3	2,94	129	46,91	45	29,22
	1001 – 2000	53	12,62	24	23,53	58	21,09	53	34,42
	2001 -3000	7	1,67	43	42,16	6	2,18	30	19,48
	3001 – 4000	3	0,71	14	13,73	2	0,73	9	5,84
	4001 – 6000	3	0,71	18	17,65	0	0,00	3	1,95
	6001 – 8000	0	0,00	0	0,00	0	0,00	0	0,00
	8001 - 10000	0	0,00	0	0,00	0	0,00	0	0,00
	Total	420	100,00	102	100,00	275	100,00	154	100,00

Source: own elaboration.

In contrast, CMT firms tend to scatter more intensively. The TGD experienced a decrease from 36% in 1916 to 9.09% in 1954. As with wholesaling, the CMT literature in

Barcelona is almost non-existent. However, results about its intra-urban location highlight two opposite dynamics: on the one hand, the importance of the surroundings of the TGD (351–1000m), where percentages are high and the tendency is stable (26% in 1916 and 29.22% in 1954); and, on the other hand, the continuous growth of values in those urban spaces furthest from the district (>1001m) (from 38% in 1916 to more than 60% of firms in 1954).

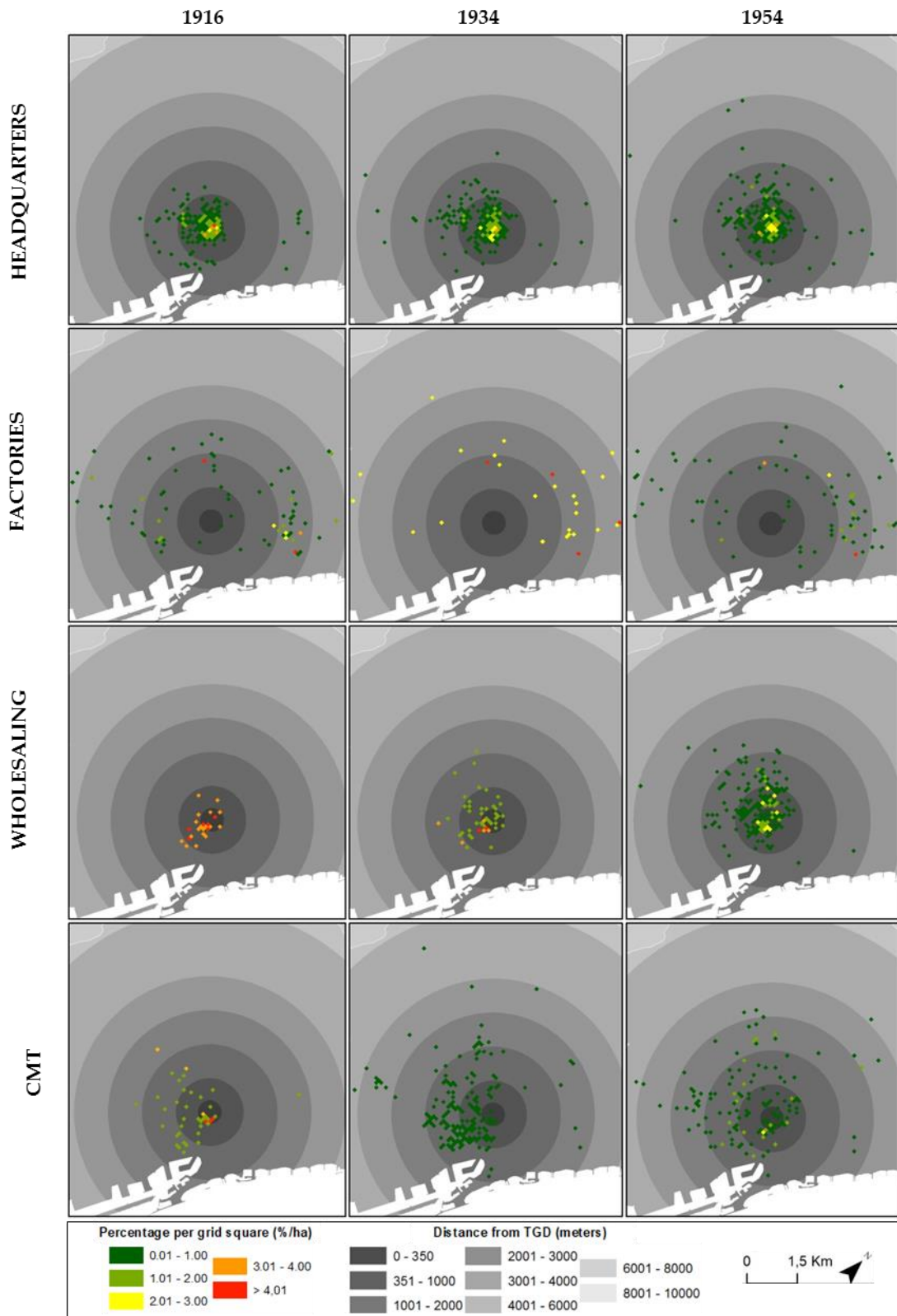
The spatial density analysis contributes to pinpoint the concentration of garment-related activities, confirming the importance of the TGD (Figure 6.3). Results are depicted by grids, which each one represent the percentage of firms located in that specific urban plot. The TGD encompasses a remarkable concentration of grids, comprising high percentages of firms (3.01%–4.00% and >4.01% in 1916, and 2.01%–3.00% in 1934 and 1954), while in the surrounding rings, values diminish progressively. The location of headquarters in the TGD correlates with the proximity to important transport infrastructures. Raw cotton was imported through the seaport and then transported by rail to the company towns through the Estació de França, located on the south side of Sant Pere. Finished products were transported back to the headquarters by rail. Some of these products were, in turn, exported through the seaport. Therefore, the centrality of the TGD was also based on proximity to this logistic hub:

“The train went down directly from the Granollers’ station through the Ter’s train line. When it came from the Llobregat, it also came by train. The products came in large bags and they were left at the Estació de França. There was a cart race... two hundred carts were waiting for the products for distributing them to our warehouses”. (A5)

In relation to factories, the highest values confirm their spatial concentration in traditional industrial neighborhoods. Although grids are not remarkably concentrated, they highlight the importance of the urban areas of Sants, Gràcia, and Sant Martí, these showing high percentages.

In the case of garment wholesaling firms, results indicate two features. Firstly, in the three years under study, the TGD gathered grids with the highest percentages in Barcelona. However, the value of the majority of grids decreased from 1916 (3.01%–

Figure 6.3 Percentage of garment-related firms per grid square in Barcelona distributed by concentric rings in 1916, 1934 and 1954



Source: own elaboration.

4.00% and >4.01%) to 1934 (1.01%–2.00%) and 1954 (2.00%–3.00%) in response to an increase in the number of firms. Secondly, despite the decrease in values, the district progressively comprised a strong spatial concentration of grids. Out of the TGD, and particularly in 1934 and 1954, grids tended to scatter along Barcelona without forming consistent spatial concentrations.

Regarding CMT firms, results also highlight specific spatial concentrations. In 1916, the edge of the TGD and Sant Pere gathered the highest percentages (>4.01%). However, in 1934, values homogenized (0.01%–1.00%), forming various spatial concentrations across the city. This may be a response to the double function in terms of manufacturers and retailers. It is not unusual to find spatial concentrations in industrial districts such as Gràcia or Sants, or in commercial central urban spaces such as the Ciutat Vella and Passeig de Gràcia and surroundings. Regarding the Ciutat Vella, CMT firms are concentrated in historical commercial streets such as Ferran Street and Princesa Street (Ponsatí Caño, 2014). The concentration on Passeig de Gràcia and its surroundings coincides with the initial move of the city's commercial epicenter from the Ciutat Vella to the Eixample (Casal-Valls, 2013), which also entailed a differentiation in the business model. In the Ciutat Vella and its surroundings, the first department stores were located: El Siglo (1878), Almacenes Jorba (1933), and Almacenes Sepu (1933) (Faciabén Lacorte, 2003). Department stores were the first big retailers, including a sales space, where a large array of products were displayed—clothing, home linen, jewelry, and so on—and their own clothing workshops. The role of department stores in attracting CMT firms was important, because they could act as commercial anchors in attracting the demand market. Therefore, the spatial proximity to department stores may allow CMT firms to take advantage of the spatial concentration of demand. In the case of Passeig de Gràcia and its surroundings, luxury clothing retailers included their own clothing workshops in the same business space such as Casa Serra (Casal-Valls, 2013). These firms focused on a higher-end demand market.

Cluster analysis contributes to explain the spatial behavior of each garment-related activity and in relation to one another. The univariate GMI index shows the grade of

spatial autocorrelation of each activity in Barcelona (Table 6.7)¹⁹. The first remarkable aspect is that all results indicate a significant positive autocorrelation (p-value <0.01). Focusing on each activity, different patterns are observed. There is a strong positive autocorrelation of both headquarters (0.56 in 1916, 0.69 in 1934, and 0.62 in 1954) and, to a lesser degree, wholesale firms (0.17 in 1916, 0.18 in 1934, and 0.42 in 1954). However, although results for CMT are positive, indexes show a lesser tendency to group spatially (0.21 in 1916, 0.28 in 1934, and 0.12 in 1954).

Table 6.7 Univariate Global Moran's I index for percentages of headquarters, warehouses and apparel workshops in Barcelona in 1916, 1934 and 1954

Firm	1916	1934	1954
Headquarters	0,56	0,69	0,62
Wholesaling	0,17	0,18	0,42
CMT	0,21	0,28	0,13

Source: own elaboration.

LISA maps allow us to unmask information hidden by the GMI index, allowing us to visualize where clusters locate within Barcelona (Figure 6.4). In the three years under study, high headquarters' values (*High-High*) are concentrated completely within the TGD, spilling over to proximal urban surroundings, particularly to part of the Dreta de l'Eixample neighborhood. Results statistically confirm the ongoing spatial clustering of headquarters in the district. A smaller *High-High* cluster also appears to the east of the TGD, which almost disappears in 1954. This space corresponded to Plaça Catalunya and Passeig de Gràcia. Results also denote the presence of disseminated *High-Low* grids in some parts of the Eixample and Ciutat Vella, indicating the presence of high values surrounded by grids with notably low values. Some *High-Low* grids also settle in the Sant Martí district, where textile factories are still located. On the other hand, *Low-High* clusters detail the presence of low values surrounded by high values. They are located, logically, just adjacent to the TGD. Those grids which do not appear are classified as *Non-significant*.

¹⁹ See Appendix 1 to visualize scatterplots of results.

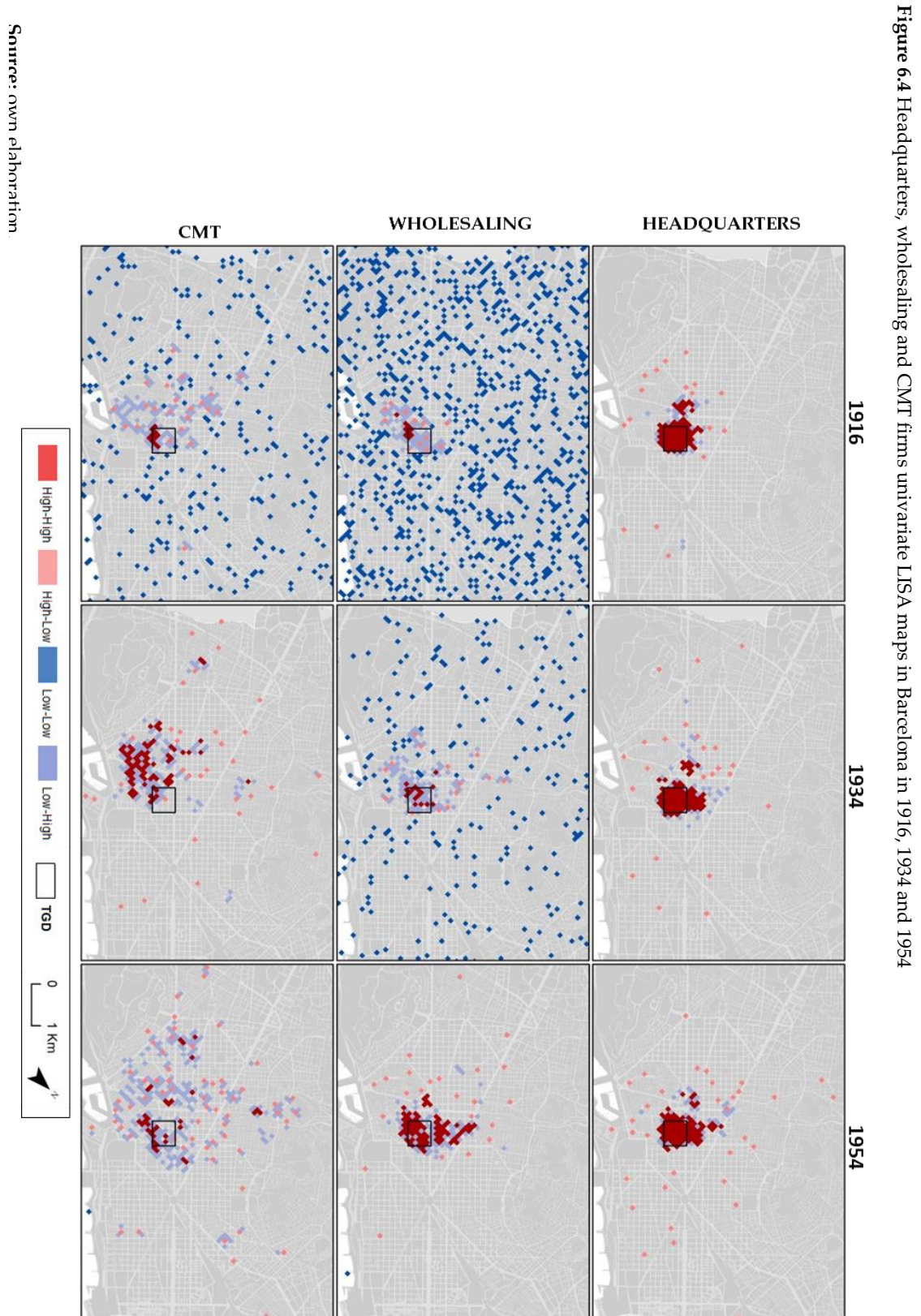


Figure 6.4 Headquarters, wholesaling and CMT firms univariate LISA maps in Barcelona in 1916, 1934 and 1954

Source: own elaboration

In the case of garment wholesaling firms, the group of *High-High* grids followed a similar pattern to headquarters. In 1916, the concentration of high values was limited and located at the edge of Sant Pere and the TGD. However, in 1954, a larger grouping of *High-High* grids was located entirely in the TGD, spreading to other urban spots of the Dreta de l'Eixample neighborhood. CMT firms followed a different pattern of clustering. In 1916, high values grouped in Sant Pere, while, in 1934, they formed a large *High-High* cluster in the Ciutat Vella. However, in 1954, *High-High* clusters were disseminated throughout the Eixample district and in some points of Gràcia, indicating a more intense spatial dispersion.

In order to deepen the spatial relationship between economic activities, bivariate autocorrelation was carried out (Table 6.8)²⁰. The bivariate GMI index depicts significant positive autocorrelations in all results (p-value <0.01). Results show the progressive tendency of headquarters and wholesaling firms to cluster spatially (0.23 in 1916, 0.30 in 1934, and 0.42 in 1954), while headquarters and CMT firms were weakly grouped (0.22 in 1916 and 0.14 in 1954). In the same manner, the tendency of wholesaling and CMT firms to cluster together was low (0.19 in 1916 and 0.17 in 1954).

Table 6.8 Bivariate Global Moran's I index for headquarters, warehouses and apparel workshops in Barcelona in 1916, 1934 and 1954

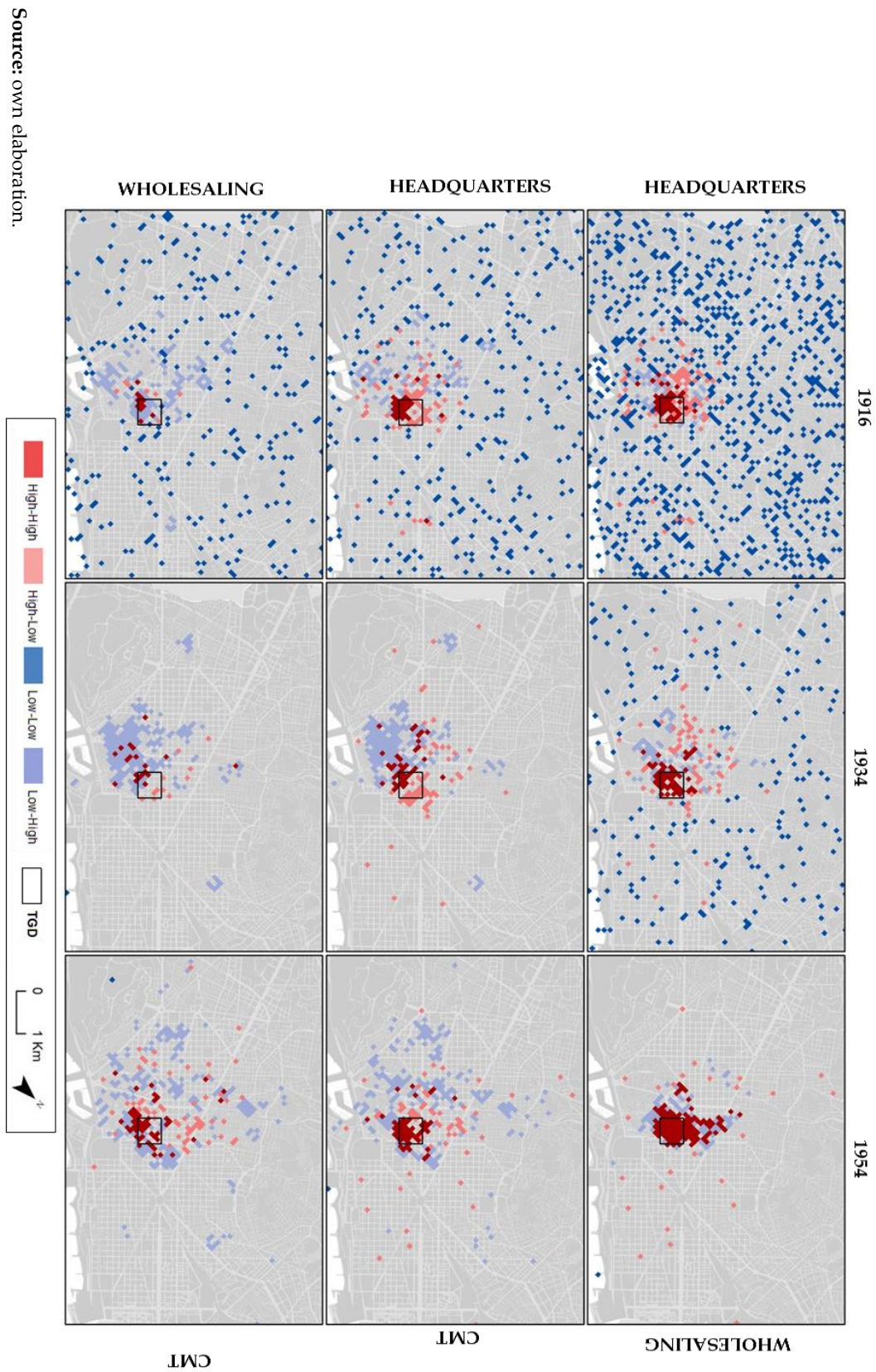
Firm	1916	1934	1954	Firm
Headquarters	0,23	0,30	0,42	Wholesaling
Headquarters	0,28	0,09	0,14	CMT
Wholesaling	0,19	0,13	0,17	CMT

Source: own elaboration.

Bivariate LISA maps confirm the above results (Figure 6.5). In the three years, high values of headquarters and garment wholesaling firms tend to group progressively in the TGD and, to a lesser degree, in its surroundings. Concerning headquarters and

²⁰ See Appendix 2 to observe scatterplot of results.

Figure 6.5 Headquarters, warehouses and apparel workshops bivariate LISA maps in Barcelona in 1916, 1934 and 1954



Source: own elaboration.

CMT firms, the TGD also embraced, in the three years, a *High-High* cluster, but less intensive than the previous one. In 1934 and 1954, it is worth pointing out the existence of a *Low-High* cluster in the Ciutat Vella (low values of headquarters surrounded by CMT's high values) and a *High-Low* cluster in the Eixample (high values of headquarters surrounded by CMT's low values). These results highlight statistically the spatial divergence of CMT firms and headquarters. Finally, the spatial convergence of garment wholesaling and CMT firms results in a small *High-High* cluster in the TGD in 1916, which grew moderately in the following years. However, in 1934 and 1954, smaller *High-High* clusters emerged in other urban areas in the surroundings of the TGD, but without forming significant spatial concentrations.

The results of the spatial autocorrelation analysis show two main facts. Firstly, headquarters were the first to cluster in the TGD following the move from Sant Pere after the second half of the nineteenth century. Secondly, garment wholesaling firms progressively followed headquarters to form the initial urban garment cluster. The garment wholesalers were not only devoted to trade but, in some cases, also manufactured their own products. For that reason, they needed to be close to headquarters to buy fabrics. This resulted in a reduction of traded and untraded costs:

A5: Warehouses only sold manufacturing goods.

Researcher (R): But warehouses, did they store or also sell goods?

A5: They sold, of course.

R: They would be like the wholesaling traders of today.

A5: Yes. They were our purchasers. They wanted two hundred meters of that fabric. For what? For manufacturing flags. They cut the fabrics and sewed them."

The spatial clustering of garment-related activities in the TGD also attracted other actors, such as brokers:

"In this area, there was like a thousand brokers. They were dedicated to charge commission. They looked for whoever had what and who wanted to buy it. They agreed and that's it. But you were not going around, because you would be all day on the street." (A5)

Results for the first half of the twentieth century show the progressive spatial concentration of headquarters and garment wholesalers within the TGD. On the other hand, spatial cluster analysis reveals that headquarters and garment wholesalers tended to cluster together, mutually benefiting from the spatial proximity to exchange inputs and outputs, and therefore reduce costs. In contrast, CMT firms clustered to a lesser degree within the district.

1955–2018: the decline of the TGD

From the second half of the twentieth century until the present, the TGD's garment cluster experienced a profound transformation. This change can be seen partly analyzing the evolution of the number of textile manufacturing firms in the TGD, Barcelona, Catalonia and Spain (Table 6.9). For that, Law 1013/1963 offers a general panorama, from the 1960s to the 1980s, of the location of the textile-related industry from a multi-scalar viewpoint. In 1965, 18.39% of national textile-related firms²¹ were concentrated in the TGD. Despite the percentages in Barcelona and Catalonia being higher (39.85% and 27.20%, respectively), the small spatial dimensions of the district force us to consider the TGD as an important national garment-related center. The percentages of the TGD, Barcelona, and Catalonia summarized 85.44% of the total, resulting in a strong spatial concentration of the industry in Catalonia, locating the rest (14.56%) throughout Spain. The evolution of data between 1975 and 1985 highlights two facts: firstly, the loss of importance of the TGD (-16.67%) and Barcelona (-20.19%) in favor of the rest of Catalonia (74.65%); and secondly, the almost static evolution in the percentage of those firms located in Spain (5.26%).

Results show, firstly, the continued concentration of the national textile-related industry in Catalonia in the middle of the 1980s; and secondly, the loss of the TGD and Barcelona as optimal spaces in favor of further spaces in the Catalan regional periphery:

“[A textile-manufacturing firm] closes its headquarters and it moves to where its factory is located. The only change that occurs is that the

²¹ As explained in section 4.2.2, law 1013/1963 gathered those firms which registered officially to import raw cotton and export part of their finished products.

manager has to make an adjustment to the staff, and commuting to the factory. It was a luxury to have the headquarters in Diagonal Avenue. At that time, the manager commuted 100 or 150 kilometers because the cotton textile factories were always located in the watersheds, mainly in the Llobregat, Ter, Anoia, and so on.” (B4)

Table 6.9 Number and percentage of textile-related firms, which imported raw cotton, in the TGD, Barcelona, Catalonia and Spain in 1965, 1975 and 1985

	1965	%	1975	%	1985	%	1965-1985 (%)
TGD	48	18,39	24	11,21	40	13,94	-16,67
Rest of Barcelona	104	39,85	60	28,04	83	28,92	-20,19
Rest of Catalonia	71	27,20	109	50,93	124	43,21	74,65
Rest of Spain	38	14,56	21	9,81	40	13,94	5,26
Total	261	100,00	214	100,00	287	100,00	9,96

Source: own elaboration from (Boletín Oficial del Estado, 1965a, 1965c, 1975b, 1975g, 1975f, 1975h, 1975i, 1975l, 1975m, 1975n, 1975c, 1975a, 1965d, 1985c, 1985a, 1985b, 1965b, 1975d, 1975p, 1975j, 1975o, 1975k, 1975e).

The above results help to frame the spatial dynamics of the garment firms in Barcelona from the second half of the twentieth century. Taking again the concentric rings model, results highlight the ongoing decline of the TGD’s garment specialization (Table 6.10). In 1975,²² despite the notable decrease in the number of textile headquarters (from 420 in 1954 to 201 in 1975), the district (0–300m) and its surroundings (351–1,000m) are still considered optimal spaces, reaching 43.78% and 45.27% of the total, respectively. However, the spatial patterns of CMT firms indicate an inverse process. As the distance from the TGD increases, the percentages grow. This tendency ceases at 2000m, because in further areas the percentages decrease progressively.

In 1996, the spatial distribution is similar to the previous period of time, but with one or two remarkable changes. Firstly, although the TGD and its surroundings achieve the highest percentages of textile headquarters, the total number decreases dramatically (from 201 in 1975 to 22 in 1996). This ongoing disappearance of textile headquarters is substituted by garment wholesaling firms. The district houses 43.95% of garment

²² As explained in Chapter 4, data about wholesaling firms in 1975 does not exist.

wholesaling firms, while subsequent rings gather percentages under 20%. In the case of CMT firms, results indicate a greater scattering across Barcelona: the TGD has 15.76%, but up to 4,000m, the percentages range between 14% and 20%.

Table 6.10 Number and percentage of garment-related firms by concentric rings in Barcelona in 1975, 1996 and 2016

	Meters from the TGD	Headquarters Textile units		Textile factories		Wholesaling		CMT	
		Number	%	Number	%	Number	%	Number	%
1975	0 – 350	88	43,78	0	0,00	-	-	54	14,63
	351 – 1000	91	45,27	0	0,00	-	-	79	21,41
	1001 – 2000	15	7,46	0	0,00	-	-	130	35,23
	2001 – 3000	5	2,49	0	0,00	-	-	66	17,89
	3001 – 4000	1	0,50	0	0,00	-	-	26	7,05
	4001 – 6000	1	0,50	0	0,00	-	-	14	3,79
	6001 – 8000	0	0,00	0	0,00	-	-	0	0,00
	8001 - 10000	0	0,00	0	0,00	-	-	0	0,00
	Total	201	100,00	0	0,00	-	-	369	100,00
1996	0 – 350	9	40,91	0	0,00	109	43,95	29	15,76
	351 – 1000	9	40,91	0	0,00	43	17,34	26	14,13
	1001 – 2000	0	0,00	0	0,00	31	12,50	37	20,11
	2001 – 3000	2	9,09	0	0,00	36	14,52	36	19,57
	3001 – 4000	0	0,00	0	0,00	25	10,08	36	19,57
	4001 – 6000	2	9,09	0	0,00	4	1,61	18	9,78
	6001 – 8000	0	0,00	0	0,00	0	0,00	2	1,09
	8001 - 10000	0	0,00	0	0,00	0	0,00	0	0,00
	Total	22	100,00	0	0,00	248	100,00	184	100,00
2016	0 – 350	1	2,63	0	0,00	36	9,78	7	11,67
	351 – 1000	6	15,79	0	0,00	52	14,13	3	5,00
	1001 – 2000	13	34,21	0	0,00	105	28,53	22	36,67
	2001 – 3000	9	23,68	0	0,00	84	22,83	9	15,00
	3001 – 4000	4	10,53	0	0,00	51	13,86	10	16,67
	4001 – 6000	4	10,53	0	0,00	37	10,05	8	13,33
	6001 – 8000	1	2,63	0	0,00	3	0,82	1	1,67
	8001 - 10000	0	0,00	0	0,00	0	0,00	0	0,00
	Total	38	100,00	0	0,00	368	100,00	60	100,00

Source: own elaboration.

In 2016, the percentage of textile units²³ in the TGD has almost disappeared (2.63%), reaching higher values in the outer rings, particularly in 1,001–2,000m (34.21%) and 2,001–3,000m (23.68%). The percentage of garment wholesaling firms also decreases

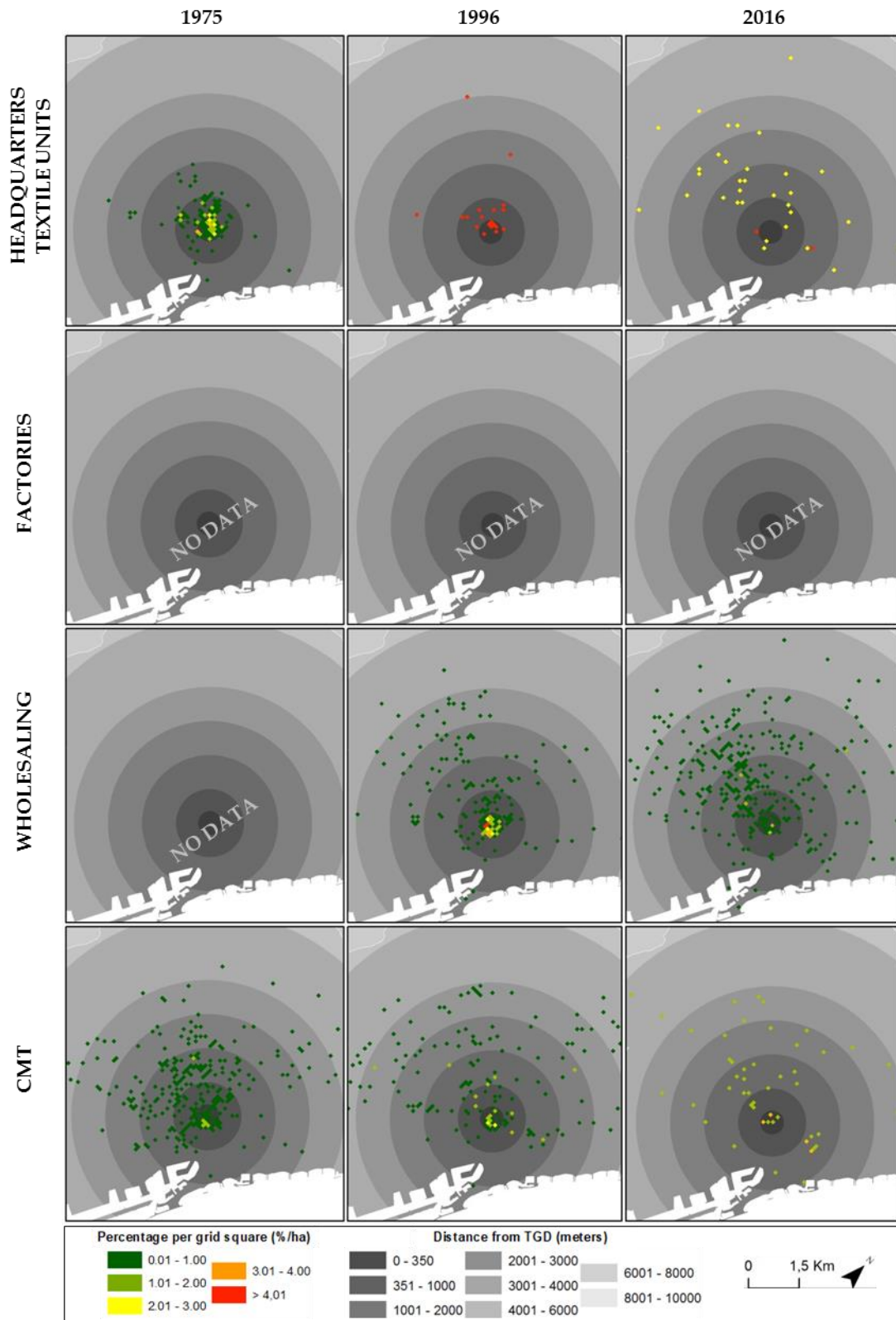
²³ To understand changes in the name referring to 2016, see the paragraph *System of Analysis of Iberian Balances (SAIB)* in section 4.2.2.

notably in the district (9.78%). However, the next rings reach higher values (28.53% in 1,001–2,000m and 22.83% in 2,001–3,000m). This corresponds to offices and MNRs, located in Passeig de Gràcia and Diagonal Avenue (CBD). In the obtained data, these firms are classified as garment wholesaling firms, but include other activities within the value chain, such as production, design, or retailing (Vicente-Salar *et al.*, 2018). The same patterns are seen in CMT firms, decreasing their percentage in the TGD (11.67%) and increasing in outer rings (36.67% in 1,001–2,000m and 16.67% in 3,001– 4,000m).

The spatial density analysis highlights more accurately the urban spatial patterns of garment firms (Figure 6.6). In 1975, grids with the highest values of headquarters were concentrated in the TGD (2.01%–3.00% and >4.00%). In the case of CMT firms, the highest values correspond to the interval 1.01%–2.00% and are located at the edge of the TGD and Sant Pere. However, grids with values between 0.01%–1.00% are scattered, mainly across the Eixample, in some urban spots in the Ciutat Vella, and in traditional industrial neighborhoods. The double function of manufacturing and trading indicates urban areas traditionally devoted to trade and industry.

In 1996, urban patterns changed. Percentages of headquarters homogenize (>4.00%) because of the low number of firms. However, grids tend to group in the TGD and its surroundings. In the case of garment wholesaling firms, there is a marked transition between the TGD and its outer boundaries. Grids within the TGD reach high values (3.01%–4.00%). Outside the district, grids reach values between 0.01% and 1.00% and tend not to group as in the TGD. Concerning CMT firms, grids tend to concentrate moderately in the TGD, the highest values ranging between 2.01% and 3.00%. Outside the district, grids are scattered across the city and values do not exceed 1.00%. This result coincides with the results of Gual *et al.* (1991) that specify that in the 1980s and 1990s, clothing wholesalers tended to move downwards in the value chain, taking control of clothing manufacturing operations. Therefore, some CMT firms may have devoted themselves both to clothing manufacturing and wholesaling, explaining their spatial concentration in the TGD. Results confirm an important change. The TGD has progressively become a garment wholesaling center because of the disappearance of headquarters, confirming the trade specialization of the district.

Figure 6.6 Percentage of garment-related firms per grid square in Barcelona distributed by concentric rings in 1975, 1996 and 2016



Source: own elaboration.

In 2016, the urban spatial patterns of the garment firms totally change. The low number of textile units results in grids with two value intervals (2.01%–3.00% and >4%). Grids are dispersed across Barcelona, resulting in no relevant spatial groupings. In contrast, wholesaling firms tend to group in different urban spots of Barcelona. The TGD comprises a concentration of grids with lower values than previous years (from 0.01% to 2.00%). Lower values (0.01%–1.00%) are scattered intensively in the outer rings of the TGD (351–2,000m) without forming significant spatial concentrations. Finally, in relation to CMT firms, grid values range between 1.01% and 4.00%, spreading across Barcelona and forming an insignificant concentration in the TGD.

In order to understand the spatial behavior of each garment-related activity and the relationship between them, spatial cluster statistics were explored. Univariate GMI results are positive and significant (p-value <0.01) (Table 6.11)²⁴.

Table 6.11 Univariate Global Moran’s I index scatterplot for headquarters, clothing wholesaling and CMT firms in Barcelona in 1975, 1996, 2016

Firm	1975	1996	2016
Headquarters	0,50	0,15	0,03
Wholesaling	N/A	0,48	0,17
CMT	0,26	0,16	0,04

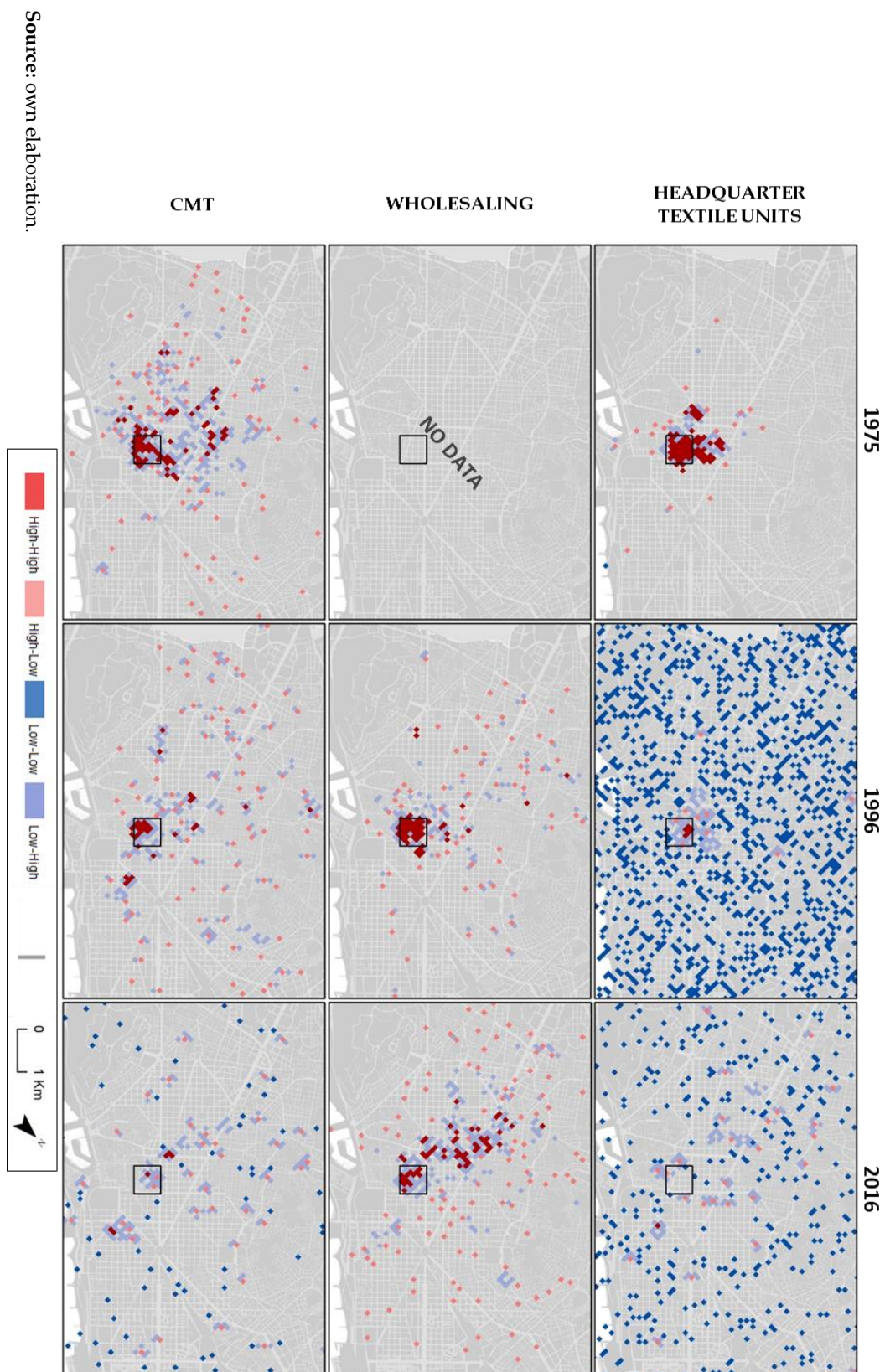
Source: own elaboration.

In the case of headquarters, results indicate a strong autocorrelation in 1975 (0.50), while in 1996 and 2016 the index decreases dramatically (0.15 and 0.02, respectively). The tendency of garment wholesaling firms to concentrate is similar. In 1996, results highlight a strong spatial autocorrelation (0.47), while in 2016, the index depicts a high strong decrease (0.17). Regarding CMT firms, the degree of clustering also reduces (0.25 in 1916, 0.16 in 1934, 0.03 in 1954, and).

Univariate LISA maps show important results (Figure 6.7). In 1975, grids of high values of headquarters are concentrated in the TGD and in the surroundings. The *High-High*

²⁴ See Appendix 3 to observe scatterplot of results.

Figure 6.7 Headquarters/textile industry, wholesaling and CMT firms univariate LISA maps in Barcelona in 1975, 1996 and 2016



Source: own elaboration.

cluster tends to disappear in 1996 until its inexistence in 2016. In relation to garment wholesaling firms, a *High-High* cluster emerges within the TGD, confirming its transformation towards a wholesaling center. However, in 2016, the concentration of values spreads out, forming small *High-High* clusters in diverse urban areas such as the TGD, Passeig de Gràcia, and Diagonal Avenue. Concerning CMT firms, in 1975, grids with high values tend to group partly in the TGD and in some specific urban spots in the Eixample and Gràcia districts. However, since 1996, *High-High* clusters have reduced, while remaining in the TGD and in the Eixample. Finally, in 2016, clusters of high values are almost non-existent, some irrelevant ones being identified in the Passeig de Gràcia and in some minor urban spots of the Sant Martí district.

The above results are complemented by bivariate measures. Results exhibit significant and positive spatial correlations (p-value <0.01) (Table 6.12)²⁵. The GMI index shows that the spatial convergence of headquarters and garment wholesaling decreased yearly, reaching very low values (0.13 in 1996 and 0.05 in 2016). The same tendency occurs between headquarters and CMT firms, reaching 0.23 in 1975, but decreasing to 0.07 in 1996 and 0.03 in 2016. Finally, although the GMI between garment wholesaling and CMT firms indicates a moderate tendency to cluster in 1996 (0.26), in 2016 it reaches a very low result (0.08).

Table 6.12 Bivariate Global Moran’s I scatterplot for percentages of headquarters, wholesale, and CMT firms in Barcelona in 1975, 1996, and 2016

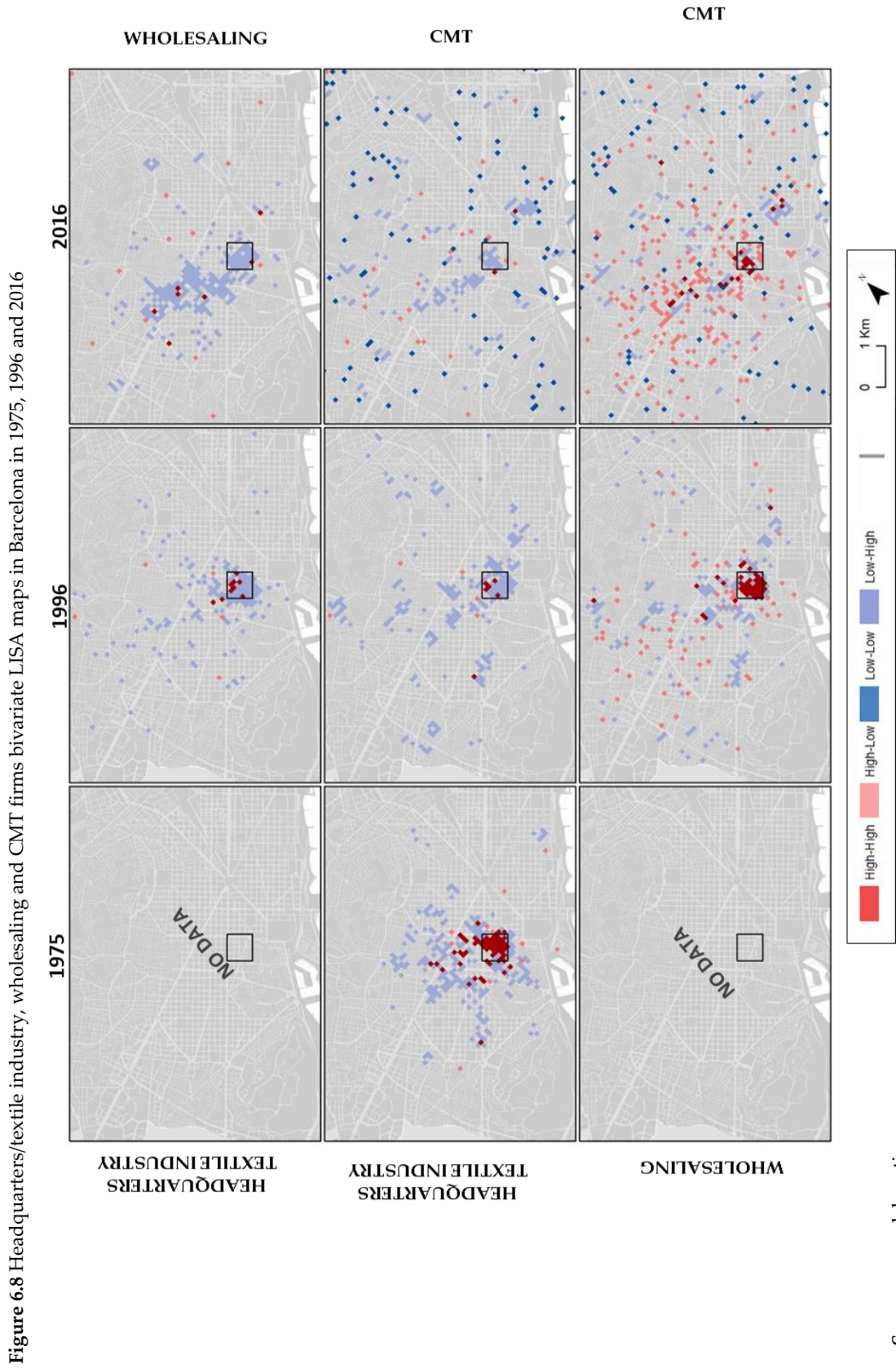
Firm	1975	1996	2016	Firm
Headquarters	N/A	0.15	0.03	Wholesaling
Headquarters	0.23	0.08	0.04	CMT
Wholesaling	N/A	0.27	0.08	CMT

Source: own elaboration.

²⁵ See Appendix 4 to observe scatterplot of results.

LISA maps provide more accurate information (Figure 6.8). In 1996 and 2016, the spatial clustering of headquarters and wholesaling firms shows the almost non-existence of *High-High* clusters. The TGD in both years holds a *Low-High* cluster, indicating the presence of high values of wholesaling firms along with low values of headquarters. In the case of headquarters and CMT firms, results highlight similar patterns. In 1975, a *High-High* cluster settled within the TGD boundaries and in some urban plots in the Eixample. However, in 1996 and 2016, a *Low-High* cluster emerged within the district, evidencing the presence of high values of CMT firm percentage and low values of headquarters percentage. Results between wholesaling and CMT firms differ moderately. In 1996, a *High-High* cluster appears in the TGD, indicating the presence of high values for both activities. Nevertheless, in 2016, that cluster diffuses significantly. The TGD embraces a small *High-High* cluster, but a *High-Low* cluster noticeably covers the Eixample, highlighting the presence of high values of garment wholesaling and low values of CMT firms.

The density and spatial cluster analysis has shown important features to understand the TGD's evolution. The disappearance of headquarters did not mean the decline of the district's garment specialization. The strong presence of garment wholesaling firms in the mid-1990s indicates the district's specialization in wholesaling trade. However, in 2016, results indicate the progressive decline of the TGD as a garment wholesaling center.



6.1.3 Evolution of the features of the Trafalgar Garment District

The analysis of the TGD's evolution comprises three main viewpoints. Firstly, there is study of its internal dynamics both as a garment cluster and as a clothing wholesaling center. In-depth interviews highlight how the different firms interact with each other. Secondly, there is the evolution of the TGD's external relations with firms located in the MAB/RMB and in the regional periphery. Finally, there is analysis of the TGD's current situation in relation to its former predominant garment economic activities (textile industry and clothing wholesaling sector). Statistical data and in-depth interviews provide results about the role of the district within both industries.

Internal dynamics within the TGD

The location of garment activities in the TGD throughout the twentieth century resulted in the configuration of economic exchanges between headquarters, garment wholesaling and CMT firms. An example is the concentration in the district of headquarters devoted to different stages of the textile value chain. The exchange of inputs and outputs meant that purchasers and suppliers located close to one another:

“Your client was also there [in the TGD]. That one, who had to buy yarn, knew which firm bought from the other firm, which manufactured shirts. You went by foot. It was a whole center from Ronda Sant Pere to Gran Via. That was the textile zone. Beyond Gran Via, you were not going to find your client.” (A5)

A second example is the economic relations between textile headquarters and both clothing wholesaling firms and CMT firms, which also exchanged inputs and outputs:

“At that time [in the 1950s], we went to buy face to face. My partner stayed at the firm and I went out to look for goods. I went out every day for a walk. I went to Francisco Palom, to Bertrand Serra... All the textile headquarters were here, in the neighborhood, from Trafalgar Street to Gran Via.” (A6)

I bought the interlining [from a firm] located in Ronda Sant Pere Street. I went by foot and I paid for it. (A9)

Finally, a third example is the relationship between CMT firms and wholesaling firms. Although the presence of CMT firms in the TGD was scarce, they supplied clothing wholesaling firms:

“This [the place where the interview was conducted] was a clothing workshop (...) Here, there were the sewing machines, women sewing. Then, the clothing wholesaling firms in Trafalgar or Méndez Núñez streets ordered trousers or t-shirts; they sewed them here, and a week later, they supplied them.” (A7)

“On the building’s floors there were clothing workshops that needed fabrics, accessories, machinery (...) All this [production] was traded by the clothing wholesaling firms. This whole cluster that emerged in the district was supplied by the same district.” (A2)

It is worth pointing out that the TGD’s garment cluster was configured not only by the three garment-related activities mentioned above, but also by an array of complementary ones. Some instances were firms dedicated to the transport of goods, or haberdashery stores, which are still present, being important to supply clothing complements:

“A9: Here, in Lluís el Piadòs Street, there was a great number of trucks.

R: Were there also transport firms here [in the TGD]?

A9: Yes, there were a lot.”

“I usually went to Santana to buy anything. I also went to Parera, in Bailen Street, and Castelltort.” (A9)

Garment-related associations also located within the cluster. This is the case for the Textile Industrial Association of Cotton Process (TIACP) (*Asociación Industrial Textil de*

Proceso Algodonero, in Spanish). TIACP was born in 1977²⁶ and located in a luxury building (known as the Cotton House) at the urban limits of the TGD in order to be proximal to headquarters. The TIACP headquarters was a meeting point for the political and economic elites (AITPA, 2002). TIACP centered on a set of activities that helped to strengthen the TGD's garment-based network:

“[TIACP] had important headquarters for controlling all the foreign trade of that time, the rate reduction related to exportations, the purchase of raw cotton, and so on. They had also a library of economic history for students and lecturers (...) On the sixth floor, [TIACP] also had a chemistry laboratory.” (B4)

However, the decline of the textile industry caused a decrease in the number of its associates. The main consequence was the rental of the Cotton House to a hotel. The capital obtained helps to maintain the association and to keep it located in the surroundings of the TGD:

“The building is now rented to a hotel. This has saved the association, and the hotel pays a lot.” (A3)

The TGD's shift from a cluster to a clothing wholesaling center changed the nature of exchanges. The concentration of clothing wholesalers within the district did not respond to the fact of benefiting from the proximity of other firms for I-O exchanges. Thus, the mere co-location resulted from the great attraction of purchasers—that is, from the spatial concentration of the demand. This fact is evidenced, for instance, by the presence of Arycasa. Their 13,000 square meters embraced an array of clothing wholesaling firms which sold different products (La Vanguardia, 1989):

“[In the 1980s] we started there because it was the only way to enter [in the clothing wholesaling trade in the TGD]. [In Arycasa] there were fashion shows and it became more known. The firms got on well. Each one had its demand market and its product, and when a client came, he came to everyone.” (A10)

²⁶ TIACP was born from an earlier association called Commercial Service of the Cotton Service Industry (*Servicio Comercial de la Industria Textil Algodonera*, in Spanish).

Another fact that illustrates the absence of exchanges is the impossibility of creating knowledge flows shown by Es-Moda. Es-Moda was another garment-related association created by local clothing wholesaler firms to pressure and warn the local government about the growth of Chinese entrepreneurs in the TGD. However, the building of common strategies in order to keep the clothing wholesaling specialization of the district and to configure knowledge and information flows has been unsuccessful:

“In the golden years, we agreed to make a list of defaulters. No one was able to draw up a list because everyone was ashamed that this guy had cheated on him. (...) Did the association undertake anything? No. We have attempted to do conferences,... No success (...) Now, I propose to send stock to Chile. Nobody wanted it.” (A2)

There was no relationship between the two associations, TIACP and Es-Moda. The lack of collaboration between the associations reached such a point that some clothing wholesalers did not know what TIACP represented (A10):

“R: Was there any collaboration between [garment-related] associations... between textile manufacturers, wholesalers...?”

A2: Never.”

“R: I want to ask if you had any contact with this institution [TIACP] in order to create strategies to keep the district as a garment cluster. Wasn't there a common strategy? Have they contacted the CMT firms? Have they asked you anything?”

A9: They have not any contact with me.”

“R: Do you know if was there any relationship between TIACP with other associations related to clothing wholesaling?”

A10: I don't know what TIACP is.”

In-depth interviews corroborate the configuration of the TGD as a garment cluster through the presence of economic activities that form the clothing value chain

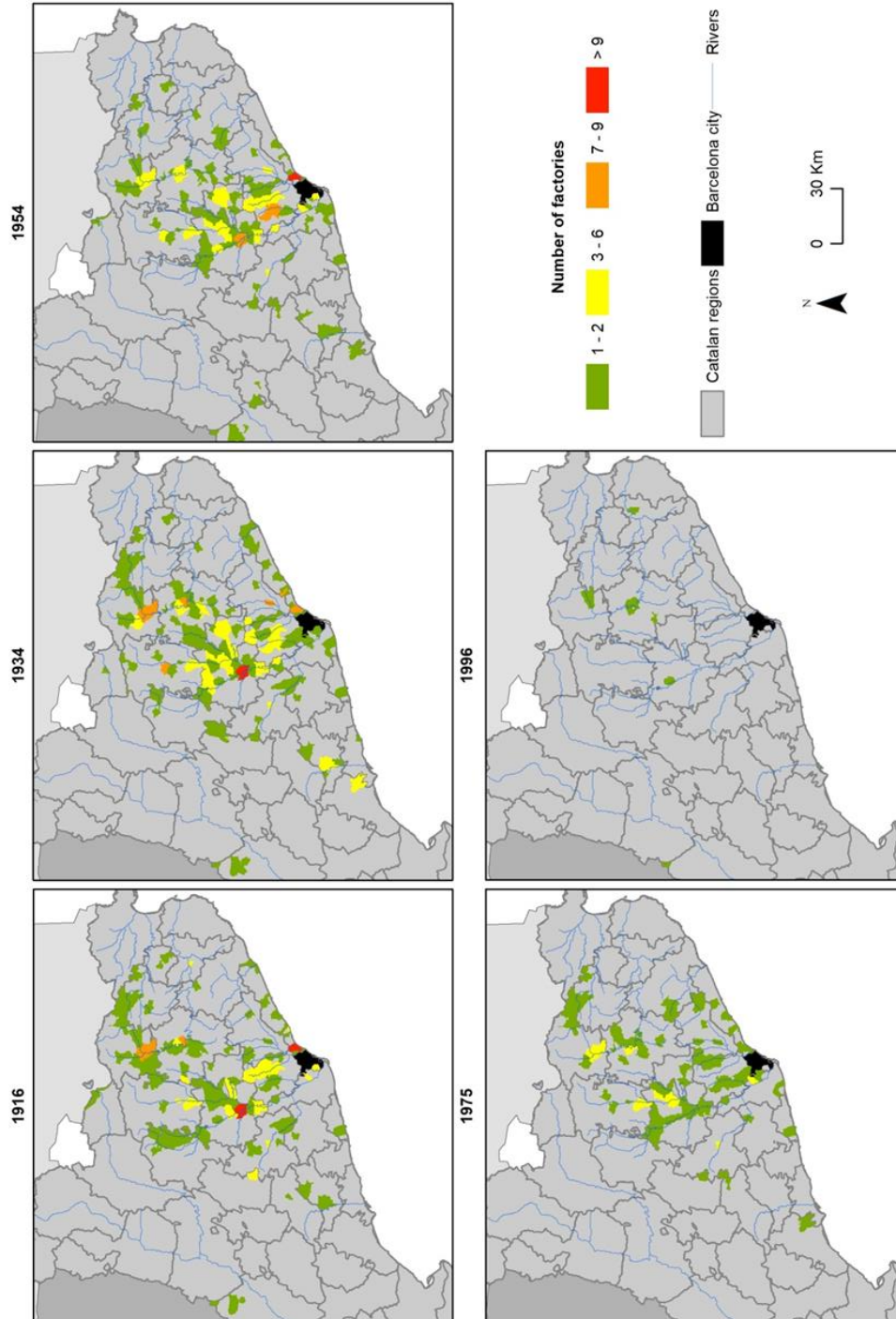
(headquarters, clothing wholesalers, and CMT firms), related industries (haberdashery stores and transport firms), and garment-related associations (TIACP). The configuration of I-O exchanges between the economic activities formed the district's garment cluster. The later configuration of the district as a clothing wholesaling center denotes the lack of exchanges between them. The co-location of clothing wholesalers resulted from the benefit of the spatial concentration of demand. On the other hand, the role of Es-Moda in the creation of knowledge linkages between firms was unsuccessful. Finally, it is also worth highlighting the weakness of the relationships between garment-related associations in the development of the TGD as a garment economic space.

The evolution of external linkages of the TGD

The TGD was not an isolated cluster. Historically, headquarters from the TGD controlled their own factories, which were located across Barcelona and Catalonia. Some scholars have pointed out the importance of Catalan peripheral cities as textile manufacturing centers (Borderías Mondéjar & Ferrer-Alòs, 2015; Deu Baigual, 1992; Llonch, 1994; Llusà Torra, 2002; Vall Casas, 2005). Therefore, it is worth noting the relationship between these cities and the TGD in order to clarify the economic scope of the district in the textile industry.

In 1916, textile headquarters located in Barcelona controlled 380 factories established across Catalonia, 52.89% of which were managed by those located in the TGD. Although this percentage decreases in 1934 (47.26%) and in 1954 (37.96%), results still reflect an important role of the TGD within the structure of the Catalan textile industry. In the three years under study, the factories of TGD's headquarters were located in the main Catalan watersheds (Llobregat and Ter), the highest number in Manresa (>9 factories in 1916 and 1934, and between 7 and 9 factories in 1954) (Figure 6.9). On the other hand, Badalona, in the MAB, also became a hotspot (>9 in 1916 and 1954, and 7–9 in 1934). It is worth noting other important traditional cotton textile cities with a high number of factories (7–9), such as Ripoll and Manlleu (Ter watershed), or Berga and

Figure 6.9 Number of headquarters per municipality controlled by headquarters in the TGD in 1916, 1934, 1954, 1975 and 1996



Source: own elaboration.

Terrassa (Llobregat watershed), although the latter was more oriented to wool textiles (Benaül Berenguer, 1992; Cutrina i Sorinas, 1986; Llusà Torra, 2002; Serrallonga, 1991).

Also worthy of note is the importance of the northeastern coastal side, where counties such as Premià de Mar, Vilassar de Dalt, and Vilassar de Mar, among others (located in the Maresme region), comprised another important industrial district focused on the textile printing process (Llonch, 1994; Raveaux & Sanchez, 2010).

From the second half of the twentieth century, the textile industry started to lose its economic importance within the Catalan economy. This situation is mirrored in the presence of factories in the Catalonian peripheral cities. The number of factories controlled by headquarters in Barcelona decreased from 260 in 1975 to 25 in 1996. However, the percentage of those controlled by headquarters in the TGD decreased moderately (39.62% in 1975 and 32% in 1996). In 1975, the municipalities located along the watersheds were still the main textile industry spaces. Nevertheless, municipalities only housed between one and six factories, mirroring a dramatic downturn. In the Maresme region, the situation is identical. Municipalities each had a maximum of two factories. In contrast, in 1996, the decrease in the number of factories controlled by TGD headquarters resulted in the near disappearance of the Catalonian textile-based network:

R: All factories were located in the Llobregat and other watersheds. I guess that the change was dramatic, wasn't it?

B4: Very dramatic. A complete desertification. In some villages, there were two factories that closed and workers... [became unemployed]... All workers dedicated to the textile factories...

The disappearance of Catalan textile factories, and, consequently, the loss of the relationship between the district and its periphery, did not mean the total absence of external linkages. In the 1990s, the district's specialization in the clothing wholesaling sector entailed its connection to the MAB/RMB, where CMT firms were located:

"There was a lot of industry in Igualada, in Mataró, in Badalona, in Santa Coloma de Gramenet, and all this production fed into here [in the TGD]." (A2)

“R: Then [the clothing wholesaling firms in the TGD] were supplied by clothing workshops located in the same district, but also from those located in the MAB?”

A7: Yes, from the MAB, and particularly from Badalona.”

“A9: We cut the fabrics and we sent the garments to workshops for sewing.

R: Outsourcing, is not it? To where?

A9: To Santa Coloma de Farnes, Santa Coloma de Gramenet, to the Parc de l’Escorxador, to Hospitalet de Llobregat...”

On the other hand, some workers also devoted themselves to tasks related to the clothing production process in their own homes, also located within the MAB and RMB, configuring a putting-out system:

“R: Where were those clothing workshops located?”

A10: It was a familiar environment. It coincided with a period of unemployment, and a lot of people lost their jobs and lots of women started to sew in their homes. These women supplied us.

R: And they were located in Santa Coloma de Gramenet, Badalona...

A10: Right! In the MAB.”

Despite the decline of the textile industry, some clothing wholesaling firms also bought fabrics and complements to firms located in the MAB and RMB:

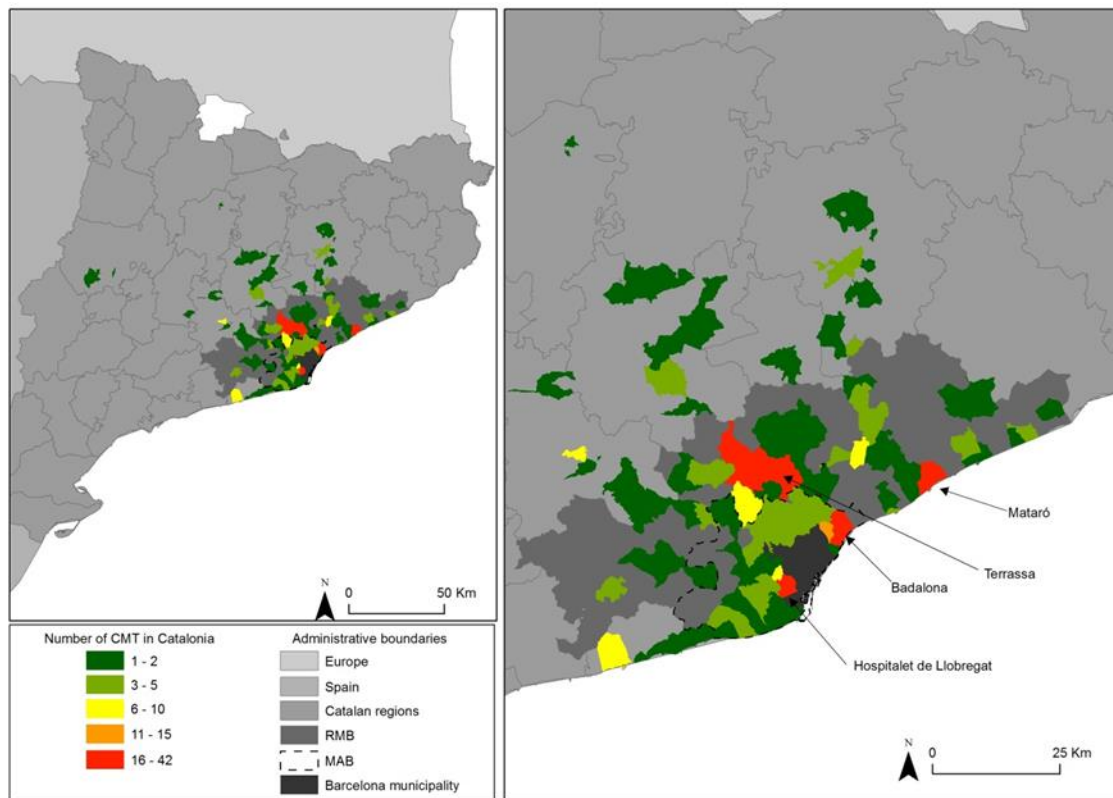
“[In the 1990s] we sold a lot of clothing, because we had a good supplier that brought fabrics from Japan. A supplier from Sabadell.” (A10)

“[We purchased] from the firms that manufactured buttons, zips... (...) they were in Terrassa, Sabadell, in the Maresme ...” (A1)

Results about the number of CMT firms in the MAB and RMB confirm the perceptions of the interviewees (Figure 6.10). Some municipalities within the MAB had the highest

number of CMT firms, such as Badalona, Hospitalet de Llobregat, Mataró, or Terrassa (16–42 firms). However, the rest of both the MAB and the RMB encompassed an array of municipalities that ranged between one and five CMT firms.

Figure 6.10 Number of CMT firms in the MAB in 1996



Source: own elaboration.

Currently, CMTs in the MAB/RMB have almost disappeared. Labor costs in developing countries are lower, causing the outsourcing of production processes. The main consequence has been the decline of CMT firms and, consequently, of external linkages with the MAB/RMB:

“85% is imported from outside, from Europe. What it used to produce in Igualada, where there were workshops and factories, now I have to look for in Italy (...) in a city called Prato.”²⁷ (A2)

“In the last 15 years, the sector has deteriorated. Clothing workshops have closed because the labor costs were very high. We had to outsource to Portugal, to Morocco, or to China.” (A1)

In sum, the transformation of the TGD from a garment cluster to a clothing wholesaling center also entailed change in their external linkages. As a garment cluster, external linkages were mainly based on the connection of headquarters with their own factories. In contrast, the configuration of the clothing wholesaling center implied the building of linkages with CMT firms in the MAB/RMB. However, the internationalization of the economy has caused the dismantling of the clothing manufacturing industry, signifying the expansion of supply linkages to foreign countries.

The role of the TGD within the textile industry and clothing wholesaling sector

The disappearance of headquarters within the TGD does not mean that the textile industry has declined totally. Therefore, the questions are where the textile firms are located, and why they do not locate within the TGD. In order to answer both questions, it is worth looking closely at the current situation of the textile industry in Catalonia. Results were obtained from the websites of TIACP and the Confederation of the Textile Industry (CTI) (*Conferencia de la Industria Textil* [TEXFOR], in Spanish) and from the websites of firms which are members of both associations. Results center on three topics: firstly, the age of the firms, which shows if surviving firms are incumbent or young firms; secondly, the location of firms' headquarters and factories, showing if they merge or split them spatially and if they are located in Barcelona or out of the city; and thirdly, the organization structure and market orientation. Results detail how

²⁷ Prato is a town located close to Florence which has experienced a growth of Chinese residents, there being more than 16,000 China-born residents in 2013, representing 8.45% of the total population of the city (Baldassar *et al.*, 2015). They were dedicated mainly to the textile and clothing industry.

firms organize internally and what kind of products they manufacture. Thus, the convergence of the results will give us an accurate picture of the current situation of the textile industry and the role of the TGD within it.

In relation to the age of textile-related firms, 15.63% were created in the first half of the twentieth century (Table 6.13). However, between 1951 and 1990, the percentage of such firms increased to 53.13%. The most intensive periods were the 1950s and 1980s (16.67% and 17.71%, respectively). From 1991 onwards, the percentage of new firms reduced, reaching 3.13%. Therefore, results highlight that a great percentage of surviving textile firms, from 1901 to 1960, may be considered incumbent firms. On the other hand, those from the 1980s may correspond to merger strategies from pre-existing firms.

Centering on the firms' spatial location of their units, there are three different models. First, there are firms that spatially merge the headquarters and the factory, representing 45.83% in relation to the total number of firms (Figure 6.11). Focusing on the location, 43.18% are located in the RMB, while 25% are settled in the rest of Barcelona province and 27.27% in other Catalonia provinces (Girona and Tarragona). Finally, 4.55% are in the MAB and none in the TGD.

Table 6.13 Number and percentage of textile manufacturing firms by age

Year	Number	Percentage
< 1900	5	5,21
1901 - 1950	15	15,63
1951 - 1960	16	16,67
1961 - 1970	6	6,25
1971 - 1980	12	12,50
1981 - 1990	17	17,71
1991 - 2000	3	3,13
2001 - 2018	0	0
No data	22	22,92
Total	96	100,00

Source: own elaboration.

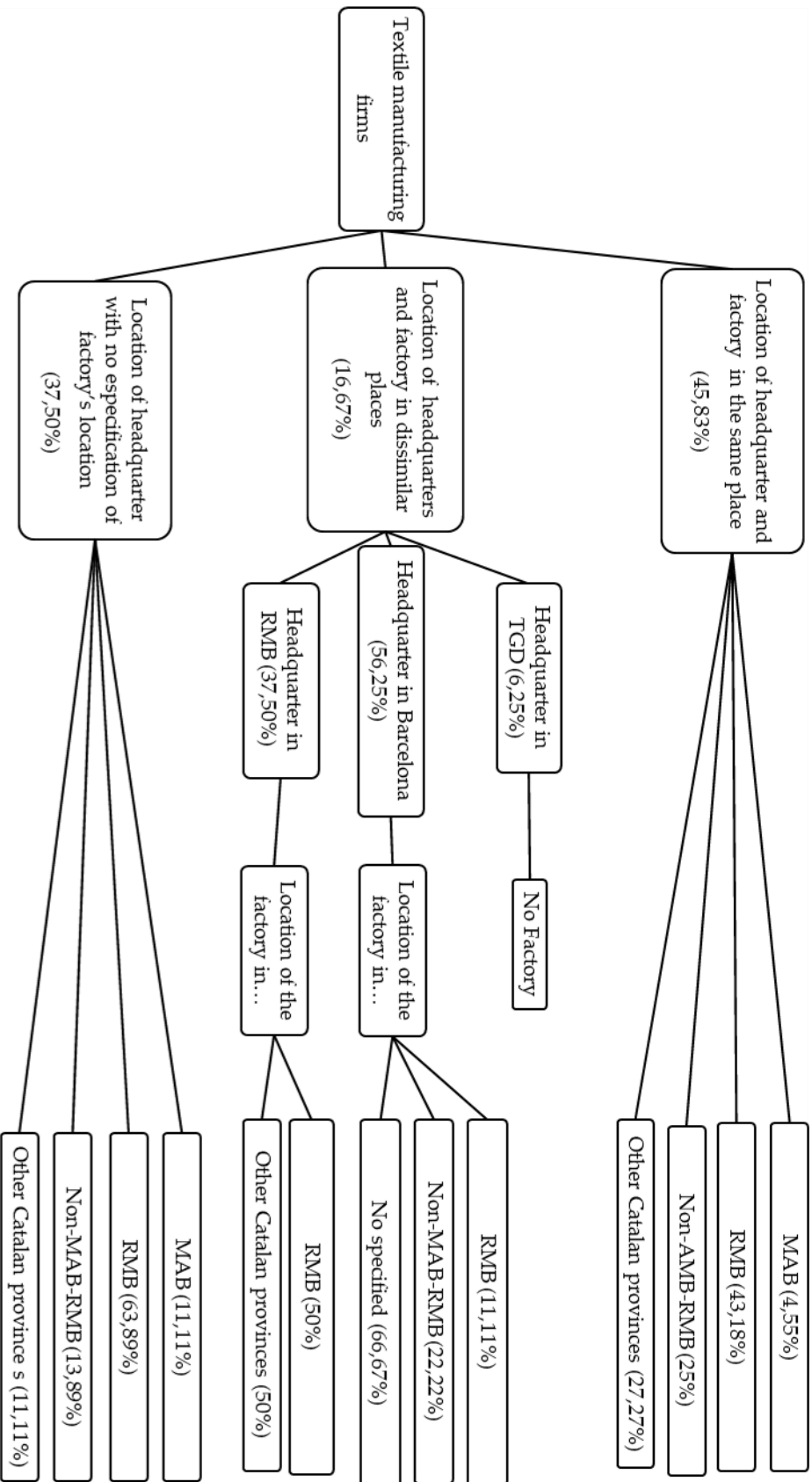
The second group concerns those firms that split the units, representing 16.67%. In relation to headquarters, 6.27% are located in the TGD. They do not own factory.

Headquarters that locate in the rest of Barcelona represent 56.25%. Of these, 11.11% establish their factory in the RMB, and 22.22% in the rest of Barcelona province. On the other hand, 66.67% of firms do not specify the location of their factories. Finally, 37.50% of firms decided to settle their headquarters in the RMB, of which 50% establish their factories in the RMB and in the rest of Barcelona province

The last group relates to those firms that have specified the location of their factory but not of the headquarters. Given the poor availability of information here, it is impossible to know if they merge or split the units. This third group represents 37.50% in relation to the total. Results highlight that 63.89% are in the RMB and 13.89% in the rest of Barcelona province. MAB and the rest of the Catalonia provinces account for 11.11%.

Results highlight two facts. First is the tendency to merge headquarters and factories spatially, and their location in the RMB—that is, outside Barcelona but proximal to the city. These results may indicate that firms benefit from better accessibility because of the proximity to transport infrastructures such as highways. On the other hand, the closeness to Barcelona can also signify the importance of other infrastructures, such as the seaport or the railways. Secondly, in those firms that separate the two functions, the TGD is of very little importance in the location of headquarters, while the rest of

Figure 6.11 Localization and organization structure of TIACP and CTI textile manufacturing firms members in Catalonia, 2018



Source: own elaboration.

Barcelona embraces more than half of the total. This fact can represent the ongoing importance of Barcelona as a business center for the textile industry.

Regarding the organization structure and demand orientation, information is again poor, but it highlights general economic dynamics within the industry (Table 6.14). Thus, 38.54% of the total TIACP and CTI member firms are organized under a vertical integration strategy, while 61.46% do not specify. Mixing previous information with the market orientation, results highlight that 27.03% of vertical-integrated firms are dedicated to clothing fashion and technical garments. On the other hand, 16.22% of vertical-integrated firms are devoted only to clothing fashion, and 13.51% to home linen, clothing fashion, and technical garments. Regarding those firms with an unspecified structure organization, 30.51% are dedicated to clothing fashion, 11.86% to technical garments, and 10.17% to both markets.

Table 6.14 Market oriented product and production system of textile manufacturing firms' members of TIACP and CIT in Catalonia, 2018.

	Vertical integration (38,54%)		No specified (61,46%)		Total	
	Number	%	Number	%	Number	%
H	3	8,11	3	5,08	6	6,25
H, T	-	-	4	6,78	4	4,17
F	6	16,22	18	30,51	24	25,00
F, H	-	-	1	1,69	1	1,04
F, H, T	5	13,51	3	5,08	8	8,33
F, T	10	27,03	6	10,17	16	16,67
F, T, O	2	5,41	2	3,39	4	4,17
F, O	-	-	2	3,39	2	2,08
O	1	2,70	3	5,08	4	4,17
T	3	8,11	7	11,86	10	10,42
T, O	-	-	2	3,39	2	2,08
N.D	7	18,,92	8	13,56	15	15,63
Total	37	100,00	59	100,00	96	100,00

H: Home linen; F:Fashion; T: Technical; O: Other; N.D: No data

Source: own elaboration.

Despite the lack of information, we can observe two remarkable facts: a tendency toward a vertical integration strategy, which highlights a capital-oriented industry, and the search for alternatives to the fashion demand market. The fashion market is still

considered a potential market because 57.29% of firms devote themselves to it exclusively or additionally. However, 45.84% of firms are dedicated wholly or partly to technical products. These results coincide with previous studies in other countries (Hassink, 2007). Therefore, a focus on technical demand markets is becoming a strategy to be competitive, accounting for almost 20% of the total of textile goods (Generalitat de Catalunya, 2017):

“When somebody says to me that the textile industry is non-existent, I say: You have no idea what you are talking about. Do you know what exporting is? Where it come from? The big textile-related firms have died, but there is still a network that allows competition at the top of the industry.” (B4)

“[In the textile industry], I would say that there is important diversification. There are very important firms dedicated to solar protection awnings (...) other firms devoted to textiles for planes or trains in Australia. There are firms dedicated to very specialized segments... or even to the army.” (B4)

In the case of the clothing wholesaling sector, statistical information about its present situation is non-existent. Consequently, it is impossible to evaluate the importance of the TGD as a clothing wholesaling center in the sector. However, in-depth interviews highlight some remarks about the importance of the district in the 1990s and its decline today. These results may help to gain an impression of the evolution of the TGD's influence within the sector to date.

Interviewees stress that, in the 1990s, the TGD comprised mainly clothing wholesaling firms. Despite Madrid and Valencia also embracing clothing wholesaling centers (Noticiero Textil, 1987), the TGD became an important hub, covering a large domestic market:

“You have to take in account that the fashion wholesaling sector was divided between Madrid and, mainly, Barcelona. All Spanish clients came here.” (A2)

“They came from all Spain and they came here [to the TGD] to buy.”
(A8)

“People came from Almería, Canarias, Mallorca... there were long queues [in the firms of the TGD].” (A1)

“This district [the TGD], in the 1980s and 1990s, was the district where most money was exchanged. This client that I mentioned to you explained to me that at the end of the 1980s, he earned around twenty million pesetas every day. People from around Spain came here.” (A9)

The importance of the TGD within the clothing wholesaling sector attracted an increasing number of similar firms, co-locating and benefiting from the concentration of demand. Thus, after the Olympic Games in 1992, Chinese entrepreneurs took advantage of the importance of the TGD within the sector. They also began to concentrate within the district, acquiring empty spaces, and purchased firms in transfer (Vicente-Salar & Pallares-Barbera, forthcoming):

“The [clothing wholesaling] sector was in its golden years. All firms concentrated in Trafalgar Street. Then, there were huge and cheap premises. The Chinese took advantage of this and started to colonize in an extraordinary way.” (E2)

“[Chinese entrepreneurs] told us that they paid us what we wanted for the premise. They told us to establish the price...well... but we never considered changing location.” (A3)

“Lots of [local] entrepreneurs preferred to ask for double or triple for the transfer [of their businesses], and the Chinese [entrepreneurs] accepted. And so the Chinese entered [the TGD].” (B3)

The location of Chinese entrepreneurs caused the district to be known as the Chinatown of Barcelona (Madueño, 1999). On the other hand, Chinese entrepreneurs' products were characterized by covering a low-end demand market and by importing

clothing from China. For some local entrepreneurs, it was not really a problem of competence, but for others it was. Thus, the strong introduction of Chinese investment in the district entailed frictions with the local entrepreneurs and with neighbors, leading to demonstrations (del Arco, 2007):

“The prices of Chinese products were so cheap, ridiculous. However, we saw that they were not real competitors, because they sold products focused on a very low-end demand segment.” (A2)

“Chinese firms came [to the TGD] and you cannot compete with these [low] prices.” (A1)

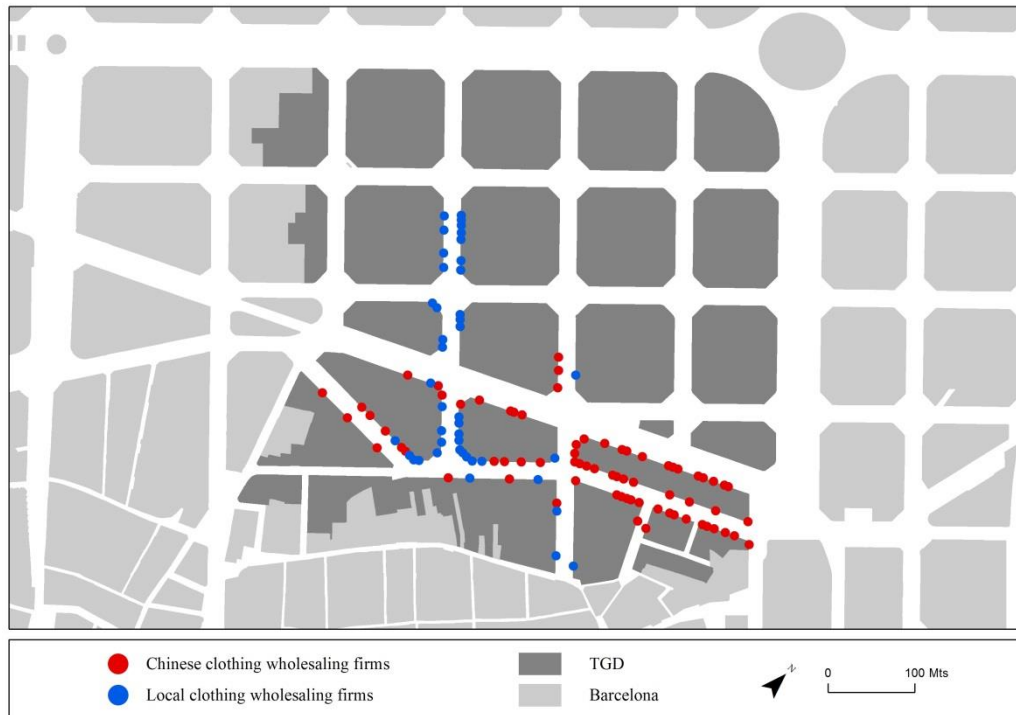
“The Chinese atmosphere was unfashionable. We have medium-high products [and firm’s image].” (A1)

However, results seem to show that the number of firms reduced notably after the economic crisis in 2008. Firms closed or moved to the metropolitan area. This was the case for Chinese entrepreneurs, who relocated to the MAB and, particularly, to industrial parks in Badalona. Thus, in 2014, the number of clothing wholesaling firms at the street level in the TGD reached 114, 37.72% of which corresponded to local entrepreneurs and 62.28% to Chinese firms (Figure 6.12). Chinese entrepreneurs located mainly in Trafalgar Street and Ronda Sant Pere Street, local firms in Bruc Street.

Whereas the Chinese investment in the TGD was initially considered problematic, its displacement to the MAB was also considered a problem affecting the district as a whole. The main consequence is the loss of the TGD as a point attracting demand, and, consequently, loss of its relevance within the sector:

“What were once Chinese [entrepreneurs] that undermined us and brought us to the fore, now some of them have become our competitors directly. We do not discuss their systems or how they do it, but they are still our competitors and they have the power of attraction. I consider it a problem that they disorganize and move out of Barcelona.” (A2)

Figure 6.12 Location of clothing wholesaling firms in the TGD classified by nationality, 2014



Source: own elaboration.

The closure of local firms and the move of Chinese entrepreneurs to the MAB have caused the ongoing disappearance of the TGD's clothing wholesaling specialization. However, among the garment wholesaling entrepreneurs, there is a division of viewpoints regarding the causes of that decline. Some of them point out the introduction of Chinese entrepreneurs in the district, but others stress the dedication of their sons/daughters to other alternative economic activities:

"R: Why do you think the garment specialization in the district is declining?

A4: The introduction of Chinese entrepreneurs had importance. The introduction of low quality clothing had a lot of importance."

"[The sons] are dedicated to other things. There has not been continuity [in the firm]. For me, that has been the main cancer in the district. The continuity." (A2)

“[Our sons] do not come here [to work in the firm] because they do not want to.” (A5)

However, the presence of MNRs’ retailers within the fashion industry seems to play an important role in the decline of the TGD. The competitive strategies of MNRs meant that fashion SME retailers could not compete, causing a reduction in the demand market for the TGD’s clothing wholesalers. Therefore, clothing wholesalers closed, moved to the metropolitan area in order to benefit from lower rents, like Chinese entrepreneurs did, or focused on supplying MNRs as a strategy to survive. Despite MNRs demand large quantities of finished products, the contractual conditions oblige clothing wholesalers to make dramatic efforts to achieve the agreed requirements. In some cases, firms prefer not to work with them in order not to be subject to an unequal commercial power relationship:

“In a business agreement, there was always a mutual benefit. Now, with these people [fashion multinational retailers], it is increasingly difficult. We have to do everything in 70 days, and they pay whatever, do you want it? This is so. Sometimes you say: [at this price] this is impossible. And they say that it is possible. They put a gun to your head. You take responsibility for the manufacture, the fabrics, the workers, etc. When they receive the final products, they take a look and if it is all right, they pay you. I do not have any security. They can cancel the contract in the middle of production. They cancel the contract and they pull your guts out. They squeeze you in an unbearable way.” (A7)

“Inditex requests a lot of products but, at other times, they request nothing (...) Suddenly, they call you and request something because they cannot find another firm. Of course, you have smashed everything!” (A3)

“We do not supply El Corte Inglés because is too complicated.” (A6)

Results evidence important facts in relation to the evolution of the TGD where the textile industry and the clothing wholesaling sector are concerned. Focusing on the

former, the textile industry has a tendency toward vertically integrated organizations and a focus on competitive markets. This is illustrated spatially in the little importance of the TGD within the industry as firms locate their offices outside the district, or simply merge their headquarters and factories and locate them outside the city. Regarding the clothing wholesaling sector, results highlight that, in the 1990s, the sector was prosperous, coinciding with the importance of the TGD as a significant economic space attracting domestic demand. However, as MNRs have gained more and more importance in the fashion industry and trade through total control of the value chain, the TGD has been undermined as a clothing wholesaling center.

6.1.4 Micro-geographies of the TGD: evolution of business features

To deepen understanding of the evolution of the TGD, it is essential to analyze the characteristics, strategies, and evolution of clothing wholesaling firms. Thus, we divide this section into a set of topics including the history of firms; downstream and upstream in the value chain; the spatial organization of firms' units, suppliers, customers, products, and markets; ICT in the production process; national and international markets; future perspectives of the TGD's garment cluster and the role of local government.

Focusing on the history of firms, in-depth interviews point out that most of the firms in the district are family businesses:

“[This firm] has always had this name because it is our surname. The owner was first my father and now it is me.” (A9)

“This firm is a family business.” (A4)

“[The founders are] my brother and me. We started in Trafalgar Street, 35, and in 1967 we started in this building.” (A8)

“This is a family business. We have 30 workers, and 12 or 13 are from the family.” (A6)

“R: Did you start the firm?

A2: Yes, with my father.”

“[This firm] was born in China. The sales office in Spain was established in 2008. We are the last one. [Before, they establish offices in] France, Italy, and, one year ago, another office was established in New York.”
(A7)

Regarding the organization of clothing wholesaling firms related to the fashion value chain, the interviews reveal that they do not follow a common strategy. Although some of them are dedicated only to the wholesaling distribution of items (A6), others conduct a set of activities, such as design, manufacturing in some production processes, wholesaling, and in some cases also the retail distribution of the products:

“[In the 1980s], we manufactured and wholesaled women’s ready-to-wear garments (...) we looked for workers that knew how to cut and sew, and, then we sold them (...) we looked for a pattern designer, we bought the fabrics in Sabadell, and then a textile cutter.” (A10)

“[In the 1990s], we bought the fabric and we designed the model. [Now] we buy the fabric, we design the model, and we cut it.” (A1)

“We design the clothing, we purchase the fabric that comes from Italy, and we send it to Mataró, where they cut it, they make the different sizes... they manufacture the whole item.” (A4)

“We have two fashion retailer firms, one in Passeig de Gràcia and another in Muntaner Street.” (A2)

“We bought the fabrics and we ordered dyeing and washing, and then manufacture of the clothing.” (A8)

Other firms work differently. Some clothing wholesaling firms choose the fabrics and designs of those clothing workshops that supply them. Then, the clothing workshops manufacture the order placed by the clothing wholesalers:

“I go to the clothing workshop, I choose the fabrics, the designs, and we make the collection. They manufacture the clothing.” (A2)

Concerning the spatial organization of firms, the emergence of showrooms in the district depicts a different strategy of wholesaling distribution. Theoretically, a showroom is a space where the most up to date collections are displayed to the clients. Thus, the physical size of a showroom tends to be small, because it is devoted only to sales, other parts of the firm (warehouses, workshops, and so on) being mainly in urban and regional spots where the land rents are lower:

“We have the factory [in Terrassa] and all goods stay there. If all goods come here [to the showroom], we drown. If there are three hundred items of clothing, they send me fifty. If we need more, they send more.” (A1)

“R: Do you think that the showroom responds to a more competitive business strategy?

A4: Yes, absolutely. They reduce costs in any way. You do not need a warehouse; the risks are lower. We want to start working like that.”

The emergence of showrooms shows a differentiation from the traditional wholesaling firms that house different parts of the firm in a single space, such as sales, the warehouse, and headquarters. Because of their smaller size, showrooms can be located on the buildings' higher floors, while traditional wholesaling firms tend to be located at premises at street level, usually with an underground level for storage (Picture 6.1). However, some traditional wholesaling firms also have bigger warehouses in the MAB and in the RMB, from which firms in the TGD are constantly supplied (A6, A8).

Picture 6.1 A showroom of a clothing wholesaling firm (left) and a traditional clothing and home linen wholesaling firm (right)



Source: own elaboration.

The location of showrooms on the buildings' upper floors entails greater restriction of clients' access. Unlike traditional wholesaling firms, clients who access a showroom are already known by the firm; if not, they should request an appointment. This process offers a more elitist image and a willingness to differentiate from traditional firms:

"We are lucky, because we are located on a main floor, we are not located in premises at street level. This also differentiates us because we are more protected, more isolated. If you are at the street level, anybody can enter. We do not sell to anyone who is not our client." (A1)

In relation to suppliers, textile factories and clothing workshops historically supplied inputs and outputs to the TGD. However, their ongoing disappearance meant that clothing wholesalers had to expand their supply networks internationally:

"R: Does the firm buy the fabrics, the complements...?"

A1: All outside Spain. Here, there were no textile factories. If you wanted fabrics printing, you had to travel to Milan, Paris, or another places."

"We went back to Paris to buy finished products. We did not buy clothing for copying as before. We bought it there to sell it here, because

[the firms in] Paris have already outsourced manufacturing to eastern [European] countries.” (A10)

“The home linen is imported. There is nothing manufactured in Spain, all is produced outside Spain.” (A6)

“85% is imported from outside, from Europe. What used to be produced in Igualada, where there were workshops and factories, now I have to look for in Italy (...) in a city called Prato.” (A2)

“[In the 1990s], the fabrics were imported from Colombia and the next years, we imported from countries where the industry was stronger... in Asia, from Pakistan...” (A3)

“In the last 15 years, the sector has got worse. Clothing workshops have closed because the labor costs were very high. We had to outsource to Portugal, to Morocco, or to China.” (A1)

Although they are supplied from abroad, the TGD’s clothing wholesaling and CMT firms are still supplied, in a very timely manner, by firms within the district and by some CMT and textile-related factories located in the MAB and in the RMB:

“Since four or five years ago, some of our products have been manufactured here again (...) because it affords greater flexibility in some parts of the process (...) In Manresa, there are small factories... in the Vallès region, too...” (A3)

“Some of our products are produced in Mataró (...) In Italy, they manufacture some fabrics and clothing very well, they are so good at dyeing, and, here [in Mataró], they are good in simpler items. It is cheaper, because the clothing is simpler. In Italy, the clothing is more elaborate.” (A4)

“When I have to buy wool, I buy it [from a textile firm] in Sabadell (...) When I have to buy some products, I visit some textile wholesaling firms

[located in the TGD]. I also buy the clothing complements in Castelltort.” (A9)

Concerning purchasers, clothing wholesaling firms supplied fashion SME firms located in Barcelona, Catalonia, and the rest of Spain:

“[In the 1980s], shopping centers became fashionable. These shopping centers encompassed small firms. We supplied these firms.” (A10)

“Customers came here from all over Spain.” (A2)

“They come from the villages. They are firms that sell a lot of labels. Small firms.” (A1)

However, fashion SME firms are disappearing because of the retirement of the entrepreneurs, the lack of family continuity in the business, and the aggressive competition of MNRs:

“The entrepreneurs of fashion retailers get older, they retire, and when that client is gone, where do you find another? If that client spent a thousand euros, now you have to look for four clients to gather that amount of money. And these four clients do not exist, because now all retailers are franchises. If before we had 700 clients, now we have 280 or 300.” (A1)

“Small fashion firms are busted by multinational retailers. From where were they supplied? From here! I used to have clients from all over Catalonia, from Barcelona, from Lleida, but not now.” (A8)

In relation to products and markets, clothing wholesaling firms develop two types of productive system: collections and *pronto moda* (fast fashion). The difference between the two lies in the production times. While the collection is oriented to small batches of production for future seasons, *pronto moda* concerns the standardized production of

current collections depending on the demand requirements. Normally, clothing wholesaling firms mix the two production systems:

“We focus on fashion collections (...), but if you need blouses and we do not have blouses and the client demand blouses...we have to manufacture 200 blouses. Pronto moda is like a reprise.” (A1)

“With a collection, we mean that we sell clothing a year in advance. During August, September, and October, we sell the clothing for next summer. That is a collection. And with pronto moda, we produce the current collection.” (A4)

Concerning sources of knowledge and information for manufacturing the clothing, some clothing wholesaling firms imitate pre-existing items. They purchase an item and try to imitate it, adding or modifying complements, patterns, and so on. This system has been carried out since the 1980s until now:

“[In the 1980s], we manufactured and wholesaled women’s ready-to-wear clothing. [At the beginning] as we had nothing, we traveled to Paris, we bought garments, and we copied them.” (A10)

“We purchase some garments and we adapt them. That is, we purchase one item and we sew to it some complements or we change others (...) we implemented this system ten years ago.” (A1)

“They [the clothing workshops] have specific collections and these are the collections that we use. We modify the design, because these collections are used by everybody. We modify the designs to our tastes and we make that clothing unique. Then, we can say that we have produced it because we just gave it the last touch.” (A4)

Unlike the textile industry, clothing wholesalers have not diversified into specialized demand markets, but have remained in the fashion industry. However, in order to be more competitive, one of the interviewees, a clothing workshop, has focused on the production of clothing for shows, performances, and plays:

“My father was into the clothing standardization industry and now we are back to handmade production, because the big orders are sent to China (...) we are focused on working for shows (...) we do not produce uniforms, because it was not competitive anymore.” (A9)

However, some clothing wholesaling firms complement their activities with others framed within completely different markets. This process highlights the decline of competitiveness in fashion wholesaling and the emergence of new opportunities in more lucrative economic sectors:

“We keep within a very limited garment activity. We are selling our stock. On the other hand, we bought some real estate units for renting. We still have a worker and with the rents obtained from these real estate units, we pay her wage.” (A10)

“We are also into the real estate market.” (A8)

“Our factory in the watershed is dedicated to producing energy (...) we are into this market because we want to invest the profits in our real estate firm. We are interested in the growth of the real estate firm.” (A5)

In terms of ICT embeddedness in the production process, some clothing wholesaling firms point out the use of CAD. The use of CAD helps to computerize the different design patterns:

“We were the first to introduce the Electra system in the design pattern. That helped to move a step forward in the production process. We produced cheaper. Before that, we did it with a cardboard pattern and each garment had a size. In the machine, we had all the patterns.” (A10)

“Before, there was no technology. We did all with paper and pencil. We had to write the design, color, size, to staple, to draw... we had to draw a lot. Now, with the technology, everything has changed a lot.” (A1)

“[One worker] computerizes [the design patterns] through special software.” (A4)

On the other hand, the intensive use of social networks has become a fundamental tool in order to make the marketing of products more flexible. Most of the firms have a website, and some of them have an online shop on specialized ecommerce platforms:

“What has changed [in the clothing wholesaling sector] is the aspect of the social network (...) They are essential because if [you do not use them] you go bankrupt (...) We are on Privalia, we have an online shop.” (A1)

Regarding national and international markets, some clothing wholesalers have created new points of sales in Spain as a strategy for capturing greater demand. On the other hand, in order to enter foreign markets, some firms have established international delegations:

“In 1986 we settled in Madrid, because there a garment wholesaling center was blooming and a lot of firms in Catalonia also moved there. We bought premises there and we sold a lot.” (A10)

“We also have points of sale in Valencia, in Madrid; we have sale agents in Sevilla...” (A4)

“We have also sold in Moscow for the last fifteen years. We have a sales agent there (...) we have sales agents in Greece and in Belgium.” (A1)

Finally, where future perspectives on the TGD's clothing wholesaling specialization are concerned, clothing wholesaling firms agree in its decline and its disappearance in a short period of time. On the other hand, they also recognize the appearance of other types of business that are totally different from the traditional specialization of the district, such as fancy bars and restaurants, and specialized retail. Some of them have a good impression of this transformation; others do not:

“Trafalgar Street is very original and, particularly, Passatge de Sert. I do not know if there are tour operators that will create a different route for alternative tourists. This district has sense as an alternative urban spot (...) Now, with the building of the new hotel, we have a new opportunity [to make profits]. Everyone has to reinvent in relation to their needs.” (A9)

“Yes, yes, everything is changing. This district that has been focused traditionally on fashion is declining and others are emerging. I gave three years of life to this area. The clothing wholesaling specialization is dying.” (A4)

“This district is becoming a tourist neighborhood. Every business is related to bike rental, fast food. All is focused on tourism.” (A7)

“I see a lot of people with luggage that go from Plaça Catalunya to the Arc of Triumph. There are three bike rental firms. I think that this urban area is becoming a tourist zone. In this bar, there are a lot of tourists.” (A3)

The interviewees have a negative view on the role of the local government in the development of the TGD as a garment cluster or clothing wholesaling center. Firstly, some interviewees blame the local administration for being very strict. The entry of Chinese investment into the TGD led to an increase in inspections, affecting not only the Chinese collective, but also the locals:

“We tried to talk to the local government. The local government ordered an inspection of the Chinese firms to ascertain if they were illegal. What happened? If the local government inspects the Chinese, they also inspect us. A lot of firms had problems, because some of them had workers without contracts.” (A10)

Secondly, the prohibition of truck traffic and the inconvenience caused by the loading and unloading areas within the TGD became a significant problem for the local government. One solution was to configure a new economic plan for the district, limiting the wholesaling trade activity:

“The pressure of the local government focused on the diversification of these large premises. They configured a new land use plan in which these large premises were dedicated to other types of business (...). The local government has never been interested in this area flourishing [economically], because of the problems of loading and unloading areas, problems with the police, the trucks... This area was so crowded, and that was a problem because this is the center of Barcelona.” (A2)

“The local government, the mayor Hereu, decided that this district would not be a clothing wholesaling center anymore. The traffic here was not suitable.” (A9)

“The local government is who decides which [economic] center from Barcelona has to disappear. We have our license [for developing our economic activity], but who wants to open a business... it is hard to get a license.” (A4)

In-depth interviews have brought important highlights to help understand the evolution of the TGD as a garment wholesaling center, mainly from the 1990s until today. The main remarks are related to historical and current features of clothing wholesaling firms. Results evidence, firstly, that almost all firms are SME family businesses that control several processes within the value chain in order to be competitive. Secondly, the supply and customer linkages have changed. Suppliers are located in foreign countries, particularly in France, Italy, Portugal, or even Asiatic and Latin-American countries. Customers are disappearing. Fashion SME retail firms are declining because of the retirement of the manager or the impossibility of competing against MNRs. The decline in demand also implies the decay of the clothing wholesaling sector. Results also stress the strategies to adapt to economic changes. Firstly, firms point out the need to create national and international delegations in order to expand their demand markets. Secondly, there is the mix of production systems, such as collections and *pronto moda*. In the fast fashion industry, it is crucial to present several collections during the year. However, it is also important to produce items for the current collections in a standardized way. This strategy allows firms to renovate their products constantly and, at the same time, to standardize the

manufacturing of clothing. Thirdly, there is the reduction of the physical size of firms through the creation of showrooms. A final factor is the introduction of ICT in the design process (CAD) or in the sales procedure (online platforms and social networks).

6.2 The Trafalgar Garment District as a New Industrial Cluster, 2018

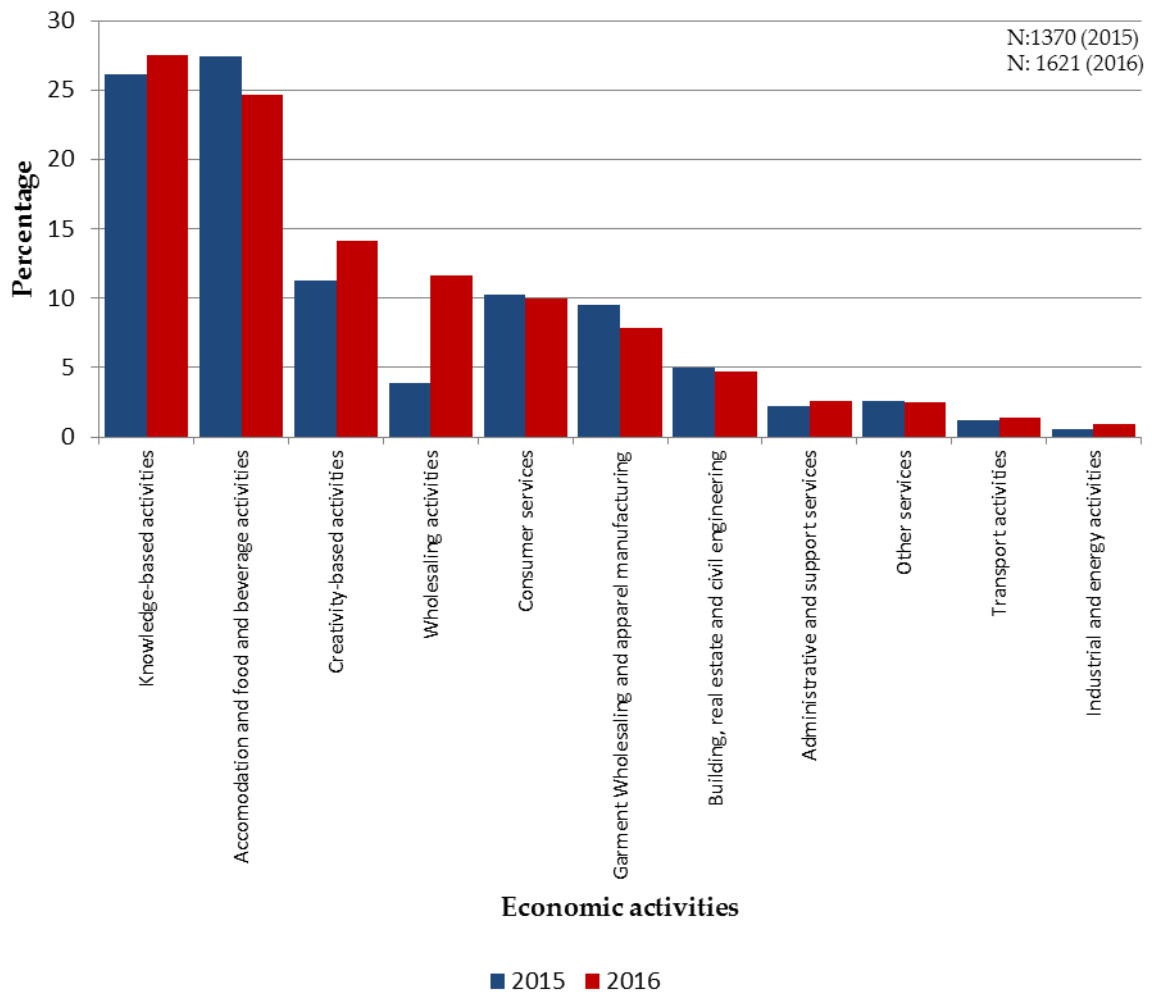
6.2.1 Knowledge-, creativity-, and tourism-based activities

Focusing on 2015 and 2016, the percentage of firms in the TGD increased by 18.32%, from 1,370 to 1,621 establishments (Figure 6.13). In 2016, the importance of garment-related firms (clothing wholesaling and CMT) in the district was weak, representing 7.83% of the total, lower than in 2015 (9.49%). In contrast, in 2015, knowledge- and creativity-based activities contributed 37.44% to the total of the district's firms, reaching 41.64% in 2016. Additionally, tourism-based firms (lodging industry) and those oriented to food and beverages (bars, restaurants, and so on) represented 27.45% in 2015 and 24.68% in 2016. In 2016, knowledge-, creativity and tourism-based firms accounted for 66.32% of the TGD's total firms, representing a transformation in the economic structure of the district.

Concerning knowledge- and creativity-based activities, CWs have become a trendy phenomenon. For this reason, interviews focused on CWs in order to gather information about their internal operating and their relationship with the TGD. CWs exercise a centripetal force in attracting highly skilled workers. These co-workers may find others in the CW with whom they can set up social and labor networks. The configuration of these networks may be enhanced by some CW staff, known as community builders:

“Community builders have two aims. First, a catalyst for reactions (...) They have to put people in contact with each other (...) On the other hand, they also control (...). Hey! Do you know what? Somebody has required me to do that. I know that it is not exactly what you do, but I think you will do it well. In two days, that person turned over five thousand euros.” (C1)

Figure 6.13 Percentage and type of firms in the TGD in 2015 and 2016



Source: own elaboration.

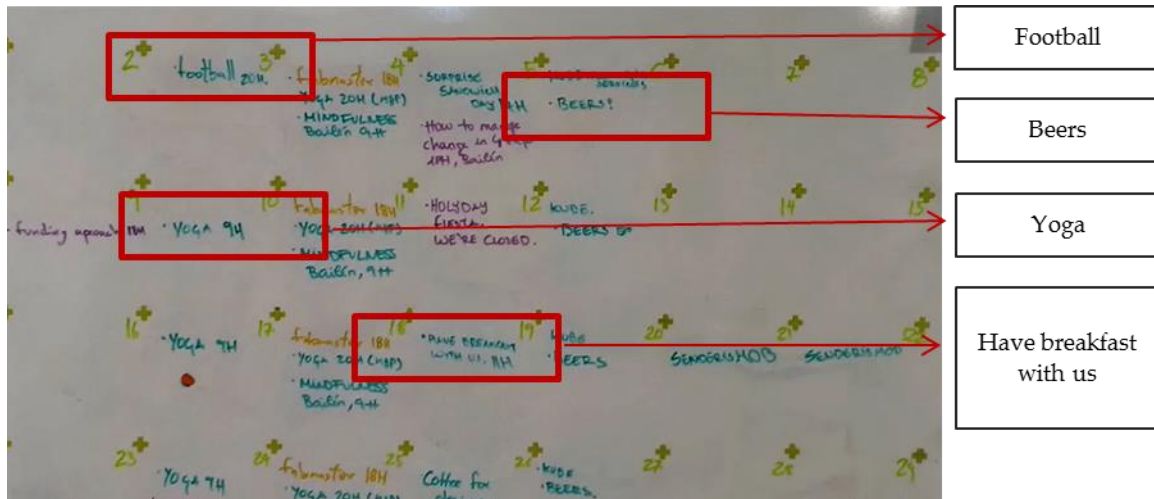
The configuration of these networks is the basis of the emergence of a community. The building of a community helps co-workers to generate a sense of belonging to a working and social environment. In order to bind the community strongly, a set of social events are arranged with the aim of creating trusting relations between co-workers, such as football matches or breakfast arrangements, among others (Picture 6.2). Interviewees also remark that they visit the bars within the TGD in their leisure time with co-workers of the same CW:

“R: What do you do and where do you go after work?”

C1: I go with co-workers to take some beers in this zone.”

“We [the interviewee and some co-workers] usually take some beers in this zone.” (I3)

Picture 6.2 Social events arranged by a CW in the TGD.



Source: own elaboration.

From a knowledge viewpoint, the community is also built by the organization of workshops, seminars, courses, talks, and so on. Co-workers can decide to explain to the rest of the community topics related to their jobs, trendy issues, or whatever topic, in order to build information and knowledge flows. On the other hand, knowledge and information can also come from external actors. An example is a web designer from a firm in the TGD which decided to share its knowledge about computer programming, arranging a co-working seminar (I1). These workshops and events are an important part of both knowledge exchange and the creation of community:

“R: What do you offer to attract co-workers?

C2: A lot of events, because people are interested in them. It creates community.”

“3D technology-related entrepreneurs contact us, and we invite them to display their stuff in the coffee room for five minutes.” (C2)

“R: Are there people that contact you to host workshops here?”

C1: Yes, constantly.

R: What kind of workshops?

C1: About anything. There are a lot of proposals. Every year there is almost a thousand.”

Concerning the relationship between CWs and the TGD, results indicate that they do not interact with other CWs within the TGD or in the surroundings in order to carry out common entrepreneurial projects. However, they know each other, and sometimes they exchange information about the CW sector:

“R: Do you have any relation with other co-workings in the district?”

C1: We know each other. I am really into the co-working atmosphere and sometimes we lunch together. However, there is not much of a relationship between co-workings.”

“R: Do you have any relationship with other co-workings in the district?”

C2: Yes, but I do not know how to explain it. For example, the other day I was talking to Beta House because of a problem with the local government. We know each other. We have a friendly interaction with them. The other day, I was also talking to another person about the occupancy rate of co-workings.”

The urban centrality of the TGD is becoming an important factor in the location of CWs. Interviewees stress the transport facilities as the most important factor, or they simply point out the need to be in a central urban space:

“The location is incredible because we are in the center of the city. There are great transport facilities.” (C1)

“The train that I take to come here stops nearby. That has made things easier for me.” (C2)

“You have three subway lines and trains.” (C1)

It is worth pointing out that interviewees not only stress optimal features concerning the TGD, but also general ones related to Barcelona. Interviewees related to ICT-based or videogame industries also indicate some important aspects that have motivated the decision to establish their firms in the city. The most remarkable feature is Barcelona’s innovative milieu in relation to technology and innovation, to highly skilled labor pools, or to the institutional thickness:

“We decided to move from Valencia to Barcelona. Everything related to ICT is moving here. Here, it is easier to find investments.” (I4)

“Now, in programming-related sectors, Barcelona is changing a lot because they want to look like Silicon Valley. Barcelona was a more interesting option than Madrid. Madrid seems to have a more closed system. Barcelona is more cosmopolitan.” (C3)

“It is easier to create a quality and talented team here than in other places.” (I5)

“Barcelona Activa helps in contacting possible investors and start-ups. They also teach courses for entrepreneurs and they help to create a financial plan [...] The Cultural Institute of Catalan Companies and the Financial Catalan Institute have given us a loan with super low interest.” (I5)

With the aim of highlighting the relationship of the TGD as an NIC with the rest of Barcelona, it is important to focus on its spatial relationship with the other knowledge-, creativity-, and tourism-based activities in the city (Figure 6.14). The highest percentages of knowledge- and creativity-based activities are clearly concentrated on the Passeig de Gràcia–Diagonal Avenue axis. This urban space corresponds to Barcelona’s CBD. In the case of the TGD, values do not indicate an exceptional spatial concentration of firms, the highest values ranging between 0.11% and 0.20%. The

spatial concentration of tourism-based activities is more diffuse in the city, but a set of hotspots emerge in the Eixample and, to a lesser degree, in the north of the city, in the Sant Martí district, which corresponds to the 22@Barcelona district. In the case of the TGD, the district embraces percentages between 0.21% and 0.34%.

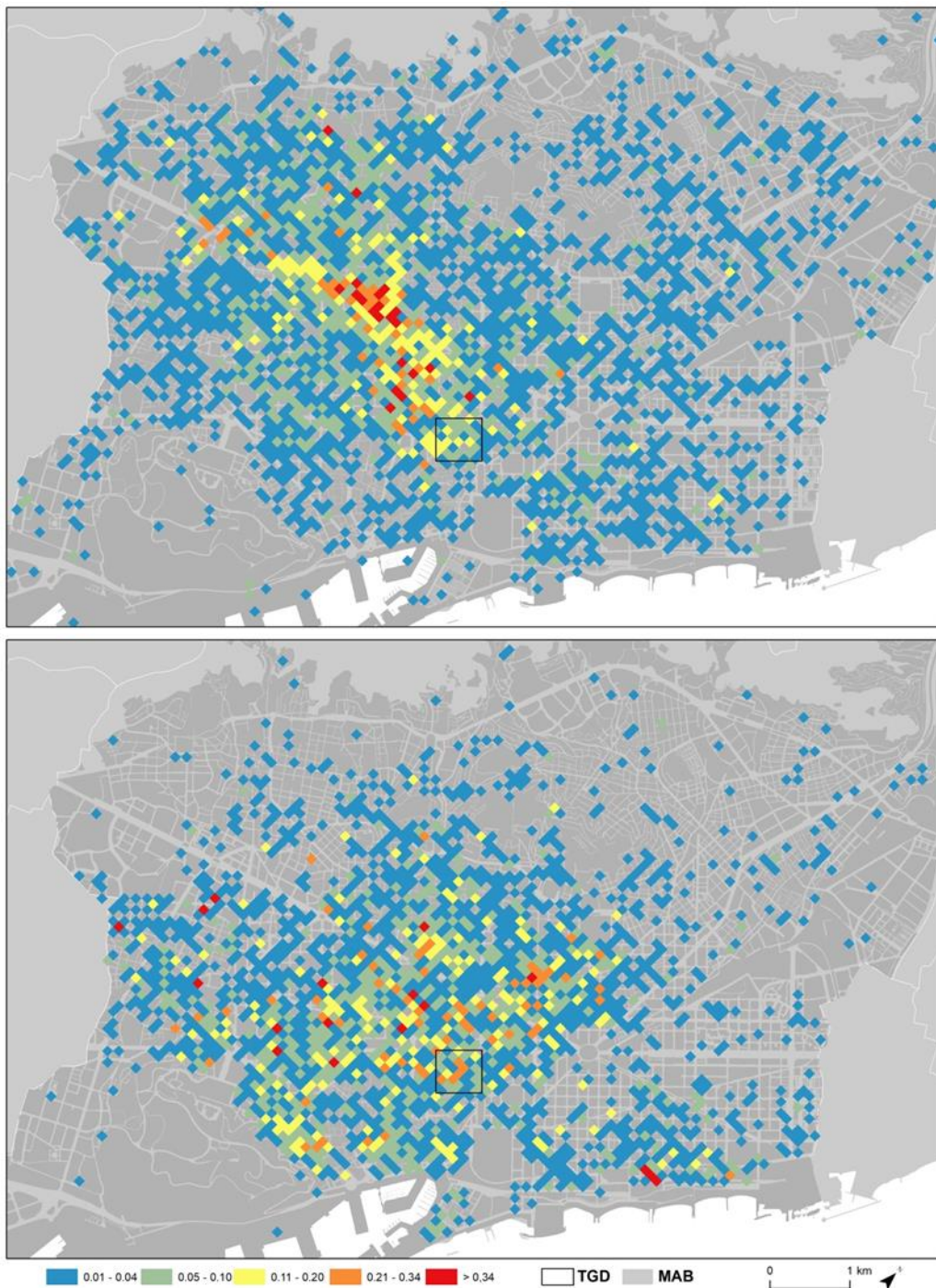
In order to focus on the spatial dynamics of both groups of activities, a spatial cluster analysis has been carried out. The autocorrelation of knowledge- and creativity-based activities depicts a GMI index of 0.49, and tourism-based activities of 0.36.²⁸ Despite both results highlighting a positive and strong spatial autocorrelation, high values of knowledge- and creativity-based activities tend to concentrate stronger spatially than touristic activities.

Disaggregating the GMI index, LISA maps depict the location of clusters (Figure 6.15). Concerning knowledge- and creativity-based activities, a *High-High* cluster prevails almost exclusively in the Eixample district and, particularly, in the Passeig de Gràcia–Diagonal Avenue axis. The TGD also houses some grids with high values, representing an enlargement of the previous *High-High* cluster. Regarding tourism-based activities, a *High-High* cluster is also established in the Eixample, but it tends to spread across the whole district. On the other hand, *High-High* clusters are found in other urban spots, such as the Ciutat Vella neighborhood and its surroundings. These urban spaces have long reported complaints from the neighbors. The impossibility of an optimal co-existence with tourists and the rise of illegal tourist apartments and souvenir firms have become a priority problem for the local government (Cabeza, 2017; Ledda, 2016).

In the case of the TGD, the district is completely embedded in the *High-High* cluster of the Eixample. The ongoing growth of tourism lodging and offices for knowledge- and creativity-based activities is bringing about the initial sparks of a functional gentrification. In the case of garment-related firms, the increase of rents entails their disappearance or move to cheaper premises within the TGD (I2). Secondly, the co-existence between residences and apartments for tourist use has engendered social conflicts:

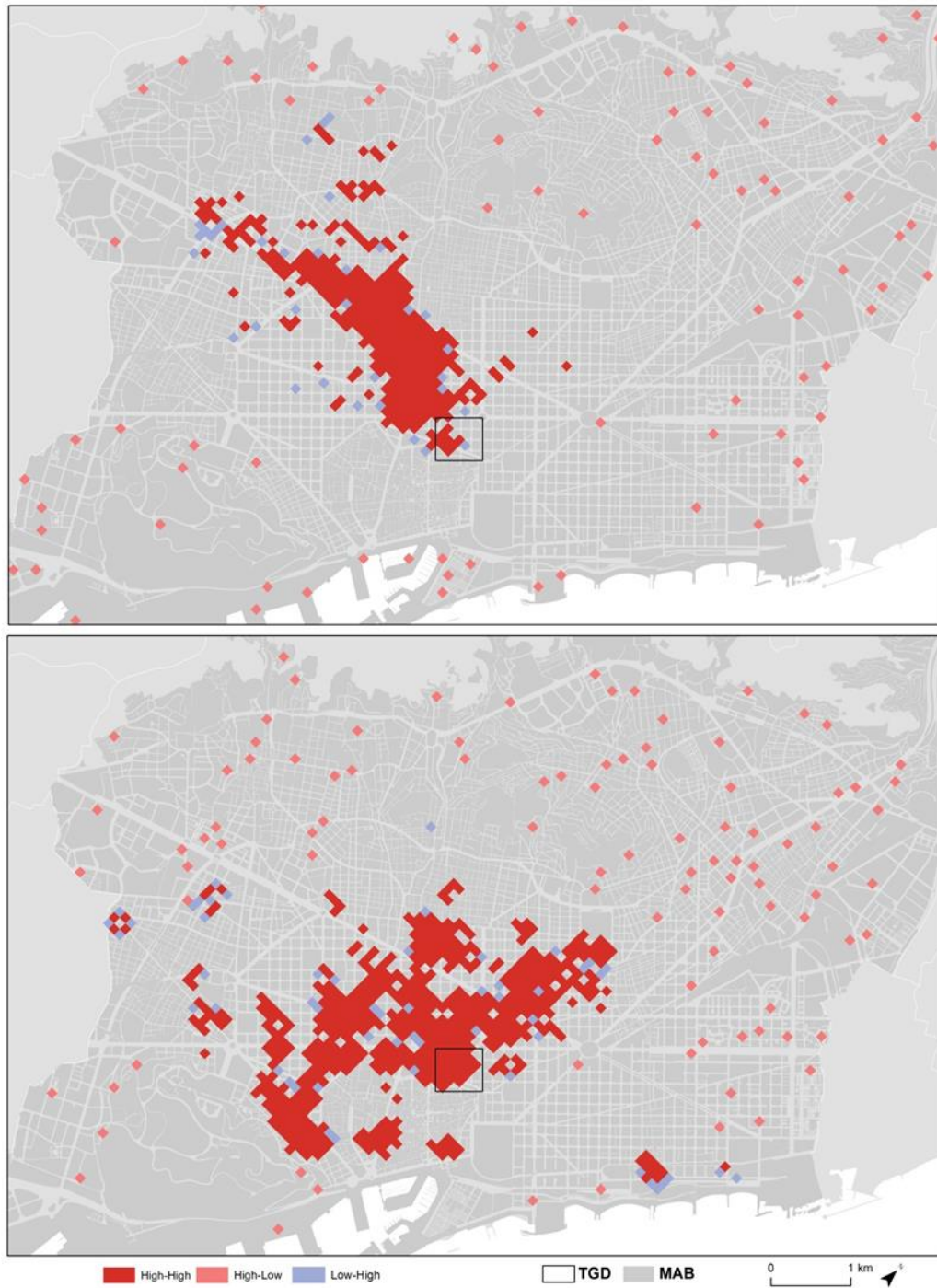
²⁸ The results are significant at 99.99% (p-value <0.01).

Figure 6.14 Percentage of knowledge- and creativity-based (up) and touristic lodging (down) activities per grid squared in Barcelona, 2017 and 2016, respectively



Source: own elaboration.

Figure 6.15 Univariate LISA map of the percentage of knowledge- and creativity-based activities (up) and tourist lodging (down) per hectare in Barcelona in 2017 and 2016, respectively



Source: own elaboration.

“We have a problem with tourism. Tourism has flooded the neighbor because of the proliferation of apartments for touristic use. Hotels and any type of tourist accommodation have flooded the neighborhood. Dreta de l’Eixample] is the neighborhood, along with Ciutat Vella, with the highest amount of tourist accommodation.” (D1)

In sum, knowledge-, creativity-, and tourism-based firms are structuring the new economic landscape of the TGD. In the case of knowledge and creativity, CWs have become the greatest exponents of the presence of both industries in the district. The most original features of CWs focus on three facts: the spatial micro-concentration of freelancers, remote workers, and SMEs dedicated to different specializations; the creation of micro flows of knowledge and information; and the building of a community as a feeling of belonging to a labor space. Results for spatial cluster analysis illustrate that the TGD forms part of a larger cluster that covers the CBD and the surroundings of Barcelona. Likewise, results for spatial density of tourist accommodation reflect that the district is embedded in a larger cluster that covers the whole Eixample.

6.2.2 From residences to condominiums

The progressive introduction of real estate’s investment in the TGD is evident. The transformation of former residences into condominiums is the most recognizable process. Civil associations see this situation as a significant problem because of the ongoing disappearance of a social network within the neighborhood:

“Yes, we are aware, and we already have enough cases of this kind of financial transaction by these firms... they transform the residences into condominiums. In fact, condominiums act as tourist apartments, because the purchasers are from abroad and they come here for two months. It is a second residence (...) In Dreta de l’Eixample, there is a set of modern buildings which are protected by law and with great patrimonial value. That has created a speculative value.” (B2)

However, the reaction of neighbors against the growth of condominiums is rare. There are two reasons for this. Firstly, neighbors belong to a high-rent and conservative social class: thus, they are not historically linked to civil associations like in other cities' neighborhoods (Dot Jutgla, 2015; Dot Jutgla & Pallares-Barbera, 2018):

“The people of the neighborhood do not react. They are not really activists. This is a conservative neighborhood.” (D1)

Secondly, the profits that a neighbor receives for selling his house to a real estate firm are higher than in other urban neighborhoods of the city:

“What is more likely happening here is that they [real estate firms] are paying very well. They [neighbors] are elderly, and real estate firms offer them a great amount of money. They ([neighbors]) use it for a decent retirement (...) A lot of neighbors have a second residence.” (B2)

“We have wondered why neighbors do not organize and rise up. They [real estate firms] compensate very well.” (D1)

On the other hand, real estate firms have also purchased public properties which belonged to the Catalan and Spanish governments. Some instances are the modern house Casa Burés (a former textile headquarter) and buildings devoted to social courts. Therefore, the emergence of condominiums in the TGD responds to a multi-scalar process:

“The Casa Burés will become a condominium. It should have been devoted for neighborhood's social purposes. The local government sold it to the Catalan government, and then to a real estate firm.” (D1)

“The former social courts' buildings were property of the Spanish Government. Sometimes, they are empty buildings, but they are already purchased. They [real estate firms] are waiting for the optimal moment.” (D1)

The functional transformation of several buildings within the district also highlights not only a change in the economic structure of the TGD, but also a social shift. This process results from two remarkable facts: firstly, the emergence of condominiums responds to a multi-scalar process, because the properties of some buildings are from governments at the regional or national scale; secondly, there is little pressure from neighbors against this change. The high-class nature of the neighborhood means that there are few experienced in the organization of civil responses.

6.2.3 Cultural and environmental amenities

The emergence of cultural and environmental amenities is one of the most notable characteristics in the economic transformation of the TGD. From a cultural viewpoint, the transformation is associated with the appearance of a set of retail businesses related to the food and beverages sector:

“We have seen the difference... for instance, before, in Casp Street, there were not hipster bars. Now there is a super-ultra-hipster business that makes juices.” (C1)

“C3: Four years ago, there were not as many hipster firms as now.

R: What hipster firms do you refer to?

C3: In this block there is Rimini, a coffee shop; Papaya, another coffee shop; and Pirineo en boca, which is a very good butcher’s shop. Since two weeks ago, there is a coffee shop where they make juices, and they are very expensive.”

On the other hand, the closeness to other attractive urban areas such as the Ciutat Vella is also stressed by interviewees as a positive feature of the TGD:

“When I want to buy special things (...) or if I want to take a glass of wine, I go to the Borne.”²⁹ (C3)

²⁹ Borne is an specific urban area within the Sant Pere, La Ribera I Santa Caterina neighborhood, in Ciutat Vella district. Borne is known as a very attractive urban plot for leisure.

“If you want to go to party, you can go to the Borne.” (C1)

Regarding environmental amenities, the upgrading of the Passeig de Sant Joan is an important factor when considering the TGD as an attractive urban area. Some interviewees point out the upgrading of the boulevard as the starting point of the transformation of the district:

“B1: You have to take into account that Passeig de Sant Joan has revitalized the district. It brought about the change.

R: How was it before?

B1: Horrible. It was all broken. The parks were abandoned.”

Nowadays, the upgrading of Passeig de Sant Joan and the closeness to other green urban areas is considered a positive characteristic of the district:

“This urban area has less traffic because all cars circulate by Gran Via. Passeig de Sant Joan is also very quiet... this is a peaceful area for people, who want to live quietly. In Passeig de Sant Joan, there are safe playgrounds. There are high-class buildings, a big park close to here... If you want to go at night, in five minutes' walk you arrive at the old city.”
(C1)

In recent years, the TGD has experienced the reconfiguration of Girona Street and its surroundings. The local government and civil associations are working together in two ways. Firstly, the urban area needs to reorganize its business model because of the strong emergence of food and beverage businesses; and secondly, Girona Street requires a re-urbanization to a greener, more sustainable and pedestrian urban spot (Ajuntament de Barcelona, 2019b):

“[We seek] the peacefulness of the city because we have two main problems. First, the air and acoustic pollution; and, second, the scarcity of green spaces.” (D1)

The emergence of beverage and specialized firms denotes a variation in consumption patterns within the district and therefore a change in cultural behavior. The presence of trendy bars and restaurants seems to be the focus of the so-called creative class, or even tourists. On the other hand, the upgrading of Passeig de Sant Joan and the future plan for Girona Street are playing an important role in turning the district into an attractive urban space.

6.3 Summary

From the beginnings of the 20th century to the present, the TGD has transformed from an urban garment to a NIC because of a set of complex processes.

First, the geolocalization of textile firms in the nineteenth century and the analysis of Barcelona's urban evolution have allowed to corroborate that the beginning of the TGD could not be explained without the spatial concentration of textile factories in Sant Pere. Since the second half of the century, the textile firms moved from Sant Pere to the district.

In the beginnings of the twentieth century, the spatial density and cluster analysis depict a set of remarkable facts. In the first half of the century, headquarters are the first firms to cluster significantly in the TGD, while garment wholesaling firms did it at the end of the period of time. In the case of CMT firms, they cluster at the edge of the TGD and Sant Pere and, in a lesser degree, in other urban spot of Barcelona. However, the bivariate autocorrelation shows that headquarters and garment wholesalers are those that depict a higher degree of correlation clustering in the TGD. In the second half of the century, this tendency decline. Headquarters disappear, while garment wholesaling firms strengthen its spatial concentration in the district until the end of the century. However, in 2016, the spatial cluster analysis details the absence of the three garment-related firms in the TGD.

Concerning the evolution of the TGD's features as a garment cluster, they can be divided in internal dynamics, evolution of the external linkages and the role of the district within the textile industry and the clothing wholesaling sector. In relation to the TGD's internal dynamics, the three garment-related sectors carried out I-O linkages

configuring a garment cluster. During the second half of the twentieth century, headquarters disappeared and the clothing wholesaling remained. Thus, the TGD became a clothing wholesaling center. In this case, firms co-located with the aim to take advantage of the demand concentration. The presence of CMT within the district caused I-O linkages. On the other hand, despite the presence of garment-related institutions, the lack of cooperation between them caused the absence of knowledge and information flows.

Regarding the TGD's external linkages, the location of textile factories in the watersheds entailed a connection of the TGD with the MAB/RMB and the regional periphery in order to carry out I-O exchanges. When the TGD became a clothing wholesaling center, the external relationships centered in the MAB/RMB because of the location of CMT firms. CMT firms manufactured clothing and supplied TGD's clothing wholesalers.

The results in relation to the role of the TGD within the textile industry and the clothing wholesaling sector are remarkable. The current textile industry is oriented to a vertical integration structure and focuses in specialized demand markets (technical textiles). This strategy indicates a progressively independence of external economies of scale and, consequently, a higher dependence on internal economies of scale. On the other hand, firms tend to concentrate spatially all the activities within the value chain. Thus, firms locate outside the TGD and Barcelona. However, those firms that split spatially their businesses, they locate the headquarters, mainly, in Barcelona or in the RMB but not in the TGD. In the case of the clothing wholesaling sector, data are scarce. However, the in-depth interviews depict some facts. First, during the 1990s and the beginnings of the 2000s, firms within the clothing wholesaling sector obtained great profits because of the attraction of the domestic demand. Such was the case that Chinese entrepreneurs started to invest in the sector translating in the increase of Chinese clothing wholesaling firms within the TGD. However, the decrease of the demand market (SMEs) and the strong competition of MNRs is causing the decline of the sector. This fact is carrying out the decrease of the TGD's specialization in the clothing wholesaling.

The focus on the businesses' features aid to understand better the TGD's evolution. The most significant results depict that clothing wholesaling firms are familiar businesses and focused on one or more activities within the value chain (sales, manufacturing, design, etc.) On the other hand, with the aim to be more competitive, clothing wholesalers combine two production methods (collection and *pronto moda*), they establish delegations in others Spanish cities or in foreign countries in order to reach a large demand or they used ICT such as social networks or the computerization of production processes (CAD).

In the case of the TGD as a NIC, the in-depth interviews also show important remarks. First, knowledge- and creativity- and tourism-based firms are the most numerous within the district. Results center on the location factors of CWs, as a proxy of knowledge- and creativity-based firms, and how its internal structure is. In relation to location factors, in-depth interviews show the importance of urban centrality stressing the transport accessibility and the cultural and environmental amenities. Concerning the internal structure, CWs aim to create and consolidate the community. The different labor and social events and workshops develop within CWs aid to reinforce the community. Regarding the tourism-based firms, the TGD is experiencing the same problems as the rest of Barcelona. The growth of the lodging industry is causing problems related to apartments for touristic use.

With the aim to know if the TGD is configuring as a spatial cluster in relation to knowledge- creativity- and tourism-based activities, a spatial cluster analysis carried out. Results show that the TGD cannot be considered as an isolated cluster. In the case of knowledge- and creativity-based activities, the TGD is embedded within a cluster that covers the Barcelona's CBD. In the case of tourism-based activities (lodging industry), the district is integrated within a cluster that covers the whole Eixample.

In relation to condominiums, results highlight that the growth of them responds to a lack of reaction of neighbors because they belong to a conservative social class not link to civil associations

Finally, in-depth interviewees also remark a change in the consumption patterns of the district. They stress the location of trendy bars and restaurants and specialized businesses along with the proximity to green public spaces.

CHAPTER 7 DISENTANGLING THE ECONOMIC EVOLUTION OF THE TRAFALGAR GARMENT DISTRICT

The present chapter presents the discussion of results in two sections. The first section has the objective of explaining the main processes in the emergence and evolution of the TGD as a garment cluster. The discussion is conducted through the different concepts explained in the theoretical framework (agglomeration economies, CLC and ILC, lock-in, and cluster). In the second section, the discussion analyzes the TGD as an NIC in relation to its characteristics, and the factors and consequences of its emergence.

7.1 TGD's garment cluster. Processes in its evolution

7.1.1 Agglomeration economies in the configuration and evolution of the garment cluster

The emergence and evolution of the TGD's garment cluster resulted from two interrelated processes. The first process relates to the textile inheritance from Sant Pere. The origins of the TGD are historically linked to the emergence of agglomeration economies in Sant Pere in the nineteenth century. Since the second half of the nineteenth century, headquarters have benefited from urbanization economies because of the proximity to the CBD and to transport infrastructures such as the railway station (Estació de França) and the seaport. Thus, Sant Pere became a central urban area. The urban development of the TGD and the progressive move of headquarters to the district caused the spatial displacement of agglomeration economies from Sant Pere to the district. Regarding urbanization economies, the distance between the TGD and the CBD and transport infrastructures was practically the same as from Sant Pere. Economies of localization resulted from the progressive move and settlement of headquarters in the district devoted to different production processes. This leads us to

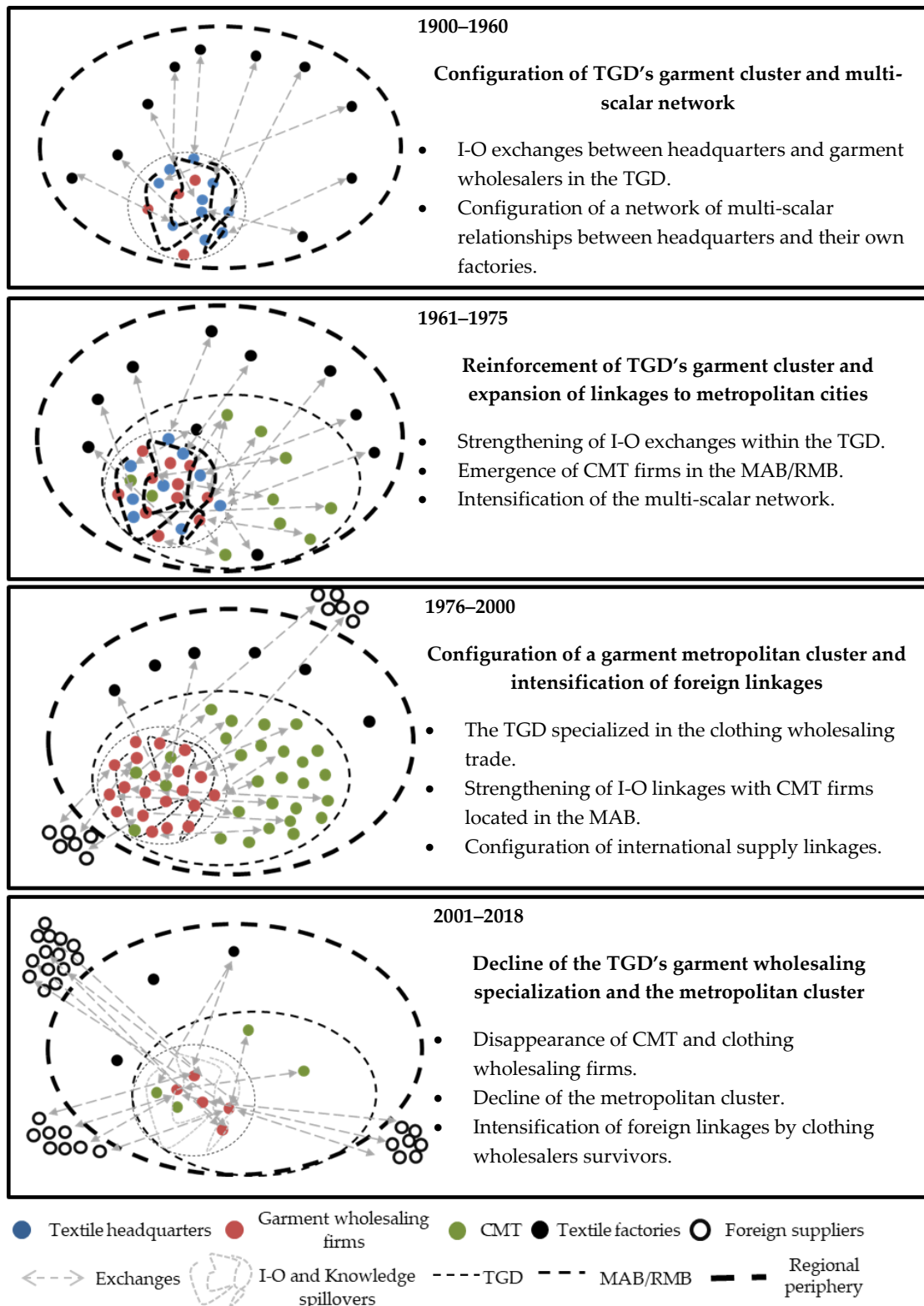
consider that headquarters benefited from the co-location. Overall, the progressive configuration of the TGD indicates the emergence of diseconomies of scale in Sant Pere. The better urban environment of the TGD (larger premises, wider streets, better accessibility, and so on) converted the district into an optimal space in expenses of Sant Pere, which became sub-optimal.

In relation to the second process, the configuration and evolution of the TGD as a garment cluster and then as a clothing wholesaling center is related to the setting up of a network built on geographical multi-scalar relations (Figure 7.1). The geographical scales were intra-urban, urban, metropolitan, and regional. The first steps in the configuration of the network dated from between 1900 and 1960. Headquarters depended on the finished goods from their own factories located in the urban and regional peripheries. Simultaneously, within the TGD, the exchange of inputs among headquarters and between headquarters and garment wholesalers indicated the beginning of the garment cluster's configuration based on I-O exchanges.

Between 1961 and 1975, I-O linkages within the district strengthened. Furthermore, CMT firms appeared within the TGD. However, the majority started to locate mainly in the MAB, which supplied clothing wholesalers within the district. This new spatial production model entailed the geographical separation of economic activities within the incipient fashion value chain and the extension of I-O linkages to the MAB/RMB. Therefore, the geographical multi-scalar network was reinforced.

Between 1976 and 2000, changes were profound. Firstly, the intensification of I-O exchanges within the TGD lessened. The restructuring of industrial plans triggered the decrease in textile firms, entailing their disappearance from the district and weakening the TGD as a cluster. However, clothing wholesalers remained, transforming the TGD into a wholesaling center. Secondly, the ongoing intensification of CMT firms in the MAB/RMB caused the intensification of I-O linkages with TGD's clothing wholesalers. This caused the emergence of a metropolitan garment cluster. Thus, the spatial separation of activities within the value chain intensified. Thirdly, the configuration of linkages with foreign firms involved new ways of supplying. The substitution of local with international links suggests the search for lower costs of production or new

Figure 7.1 Multi-scalar relationships between garment-related activities in the TGD, MAB, RMB, and regional periphery, 1900–2018



Source: own elaboration.

designs and ideas which were not found in local suppliers. This situation initiated the disappearance of the metropolitan cluster.

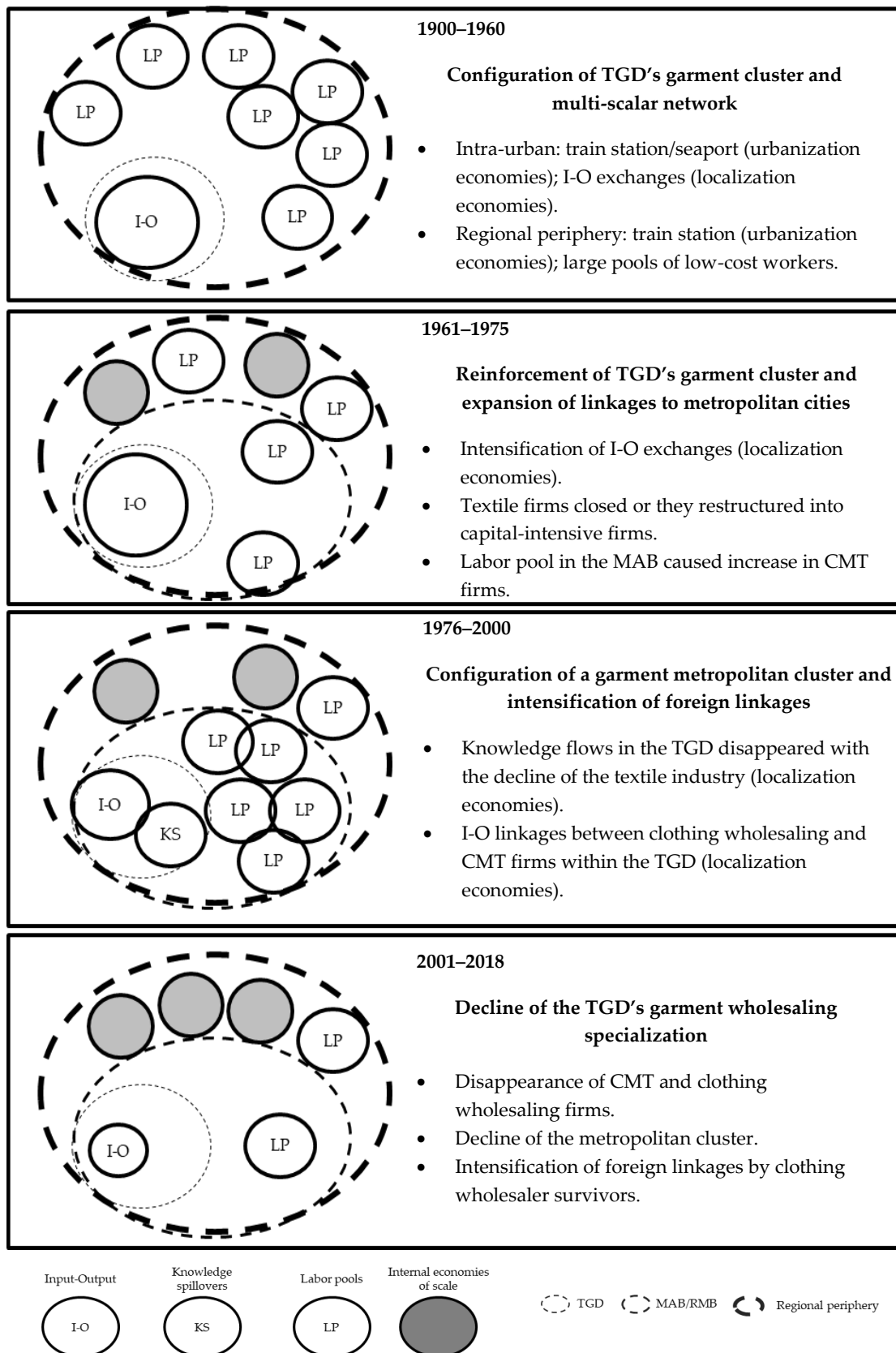
Over the period from 2001 to 2018, a process of decline took place. The supply linkages to foreign countries intensified with the rapid disappearance of CMT firms in the MAB/RMB. The clothing wholesaling specialization of the TGD also declined. Both processes entailed the decline of the metropolitan cluster.

The above evolution based on spatial interrelations is built on the role of agglomeration economies on different geographical scales (Figure 7.2). Between 1900 and 1960, firms within the TGD benefited from both intra-urban urbanization and localization economies. Where the first was concerned, transport infrastructures were still fundamental for connecting headquarters with their own textile factories in the watersheds. Meanwhile, localization economies resulted from I-O exchanges among headquarters devoted to different production processes (Table 7.1), and between headquarters and garment wholesaling firms. Factories on the regional periphery also took advantage of both urbanization and localization economies: the proximity to train stations afforded a direct connection to the TGD, while the availability of large pools of low-cost workers allowed the reduction of labor-seeking costs.

The situation changed between 1961 and 1975. Firms within the TGD benefited from localization economies through I-O exchanges. However, across the period, the industrial restructuring plans had significant consequences in the downturn of the number of textile firms, and the ongoing shift to capital-oriented organizations depending less on labor pools. In relation to the MAB/RMB, the increase of CMT firms resulted in the existence of great labor pools of low-skilled workers.

Between 1976 and 2000, the above-mentioned mechanisms intensified. Intra-urban agglomeration economies within the TGD tended to disappear. At the beginning of the period, the still existing headquarters benefited from knowledge spillovers because of the location of the TIACP. The TIACP headquarters acted as a political and economic meeting center. Where political aspects were concerned, the TIACP had strong ties with the Catalan political sphere (AITPA, 2002). In terms of economic issues, its role as an advisor to textile firms in different respects (imports and taxes, or the management

Figure 7.2 Spatiality of the multi-scalar agglomeration economies 1900–2018



Source: own elaboration.

Table 7.1 Productive specialization of textile-related firms in the TGD, 1916–2016^a

	1916		1934		1954		1975		1996		2016	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
W	108	51.18	94	50.81	88	47.06	77	47.53	7	30.43	-	-
Sp	45	21.33	28	15.14	36	19.25	41	25.31	16	69.57	-	-
Sp+W	38	18.01	37	20.00	26	13.90	20	12.35	-	-	-	-
S	5	2.37	5	2.70	10	5.35	-	-	-	-	-	-
P+W	4	1.90	3	1.62	-	-	8	4.94	-	-	-	-
P+W+Sp	4	1.90	-	0.00	1	0.53	4	2.47	-	-	-	-
P	3	1.42	2	1.08	6	3.21	9	5.56	-	-	-	-
P+S	1	0.47	2	1.08	4	2.14	-	-	-	-	-	-
P+W+Sp+S	1	0.47	2	1.08	4	2.14	-	-	-	-	-	-
Sp+W+S	1	0.47	6	3.24	5	2.67	-	-	-	-	-	-
W+S	1	0.47	2	1.08	5	2.67	-	-	-	-	-	-
B+D+S	-	-	-	-	-	-	2	1.23	-	-	-	-
P+W+S	-	-	3	1.62	2	1.07	-	-	-	-	-	-
P+W+S+B+D+S	-	-	-	-	-	-	1	0.62	-	-	-	-
Sp+S	-	-	1	0.54	-	-	-	-	-	-	-	-
Total	211	100.00	185	100.00	187	100.00	162	100.00	23	100.00	-	-

^a The number of units corresponds to Figure 6.12 because units with undefined function were also included.

W: Weaving; Sp: Spinning; B: Bleaching; S: Scouring; P: Printing; D: Dyeing

Source: own elaboration.

of industrial restructurings) suggests a fundamental role in the configuration of information and knowledge linkages. However, along the period of time, the crisis in the textile industry caused the disappearance of headquarters from the TGD or their move to the regional periphery. The progressive adoption of vertically integrated organizations caused a major dependence on internal economies than on external economies of scale. On the other hand, I-O exchanges within the district gradually disappeared. In contrast, the district's specialization in clothing wholesaling and the ongoing emergence of CMT firms in the MAB/RMB resulted in the continuous spatial separation of both activities and the reinforcement of geographical multi-scalar linkages. This situation is explained by two factors. The clothing wholesaling firms benefited more from intra-urban urbanization economies. The urban centrality and the presence of transport infrastructures facilitated better access to the district for out-of-town purchasers. On the other hand, CMT firms still benefited from localization economies because of the presence of labor pools in metropolitan cities.

Since 2001, the decline of the TGD's clothing wholesaling specialization has responded to the almost complete disappearance of agglomeration economies on the three territorial scales. Although some firms within the TGD still purchase inputs in proximal businesses, intra-urban localization economies are almost non-existent. However, clothing wholesaling firms still benefit from intra-urban urbanization economies because of transport infrastructures. On the metropolitan scale, the downturn of CMT firms has resulted in increased labor costs because of the competition of foreign countries. Finally, textile firms have increased their dependence on internal economies of scale, focusing on alternative and specialized demand markets.

Finally, concerning the scope of agglomeration economies, analysis of the evolution of the TGD's garment cluster contributes with some highlights. Regarding the industrial scope, garment-related industries have historically been characterized mainly by low ICT-intensive use, strong dependence on labor, and the requirement of spatial proximity to own-industry firms because of the fragmentation of the value chain. Therefore, although intra-urban urbanization economies played a fundamental role in the development of the TGD, the configuration and evolution of the district is based

mainly on multi-scalar localization economies (primarily on intra-urban and metropolitan scales). As for the temporal scope, the TGD's progressive garment specialization during the twentieth century and the ongoing residual presence of clothing wholesaling firms indicate the strong dependence on MAR externalities. Finally, in relation to the geographical scope, the above discussion reveals the importance of metropolitan and regional scales to explain the configuration and evolution of the TGD's garment cluster. However, the main contribution is the emergence of agglomeration economies on the intra-urban scale, coinciding with those studies focused on the NYMA and in the Netherlands (Rosenthal & Strange, 2005; van Soest *et al.*, 2006).

7.1.2 Competitive (dis)advantages of the TGD: cluster theories and lock-in

Cluster theories: competitive advantages and disadvantages

The emergence and decline of the TGD as a garment cluster and later as a clothing wholesaling center resulted from a set of multi-scalar competitive advantages and disadvantages (Table 7.2).

Between 1900 and 1960, there were three competitive advantages regarding conditions influencing the configuration of the TGD. Firstly, there was the importance of low-cost workers in urban areas and in regional peripheries. The labor orientation of the textile industry leads us to consider workers as the main competitive advantage. Secondly, there was the importance of water as an energy source. The high prices of imported British coal caused that textile firms benefited from other alternative energy sources. On an intra-urban scale (TGD), results indicate the importance of the district's urban features. Although Porter considers factor conditions as inputs in the production process, the configuration of an urban economic cluster cannot be understood without those urban characteristics that support economic activity. In this case, the availability of large underground premises was an important factor for the TGD. Headquarters and their storage found the TGD's urban characteristics optimal for locating their firms. Thus, the TGD became the administrative and, particularly, the logistic center of the Catalan textile industry.

Table 7.2 Competitive (dis)advantages of the TGD’s garment cluster between 1900 and 2018.

	Advantage		Disadvantage	
	1900 1960	1961 1975	1976 2000	2001 2018
	Garment cluster	Garment cluster	Garment cluster Clothing wholesaling center	Clothing wholesaling center
Factor conditions	Low labor costs. Water as energy source Availability of optimal urban spaces	Low labor costs	Low labor costs	Local labor costs increased respected those of foreign countries
Related and supporting industries	Vertical linkages: I-O exchanges	Vertical and horizontal linkages: I-O exchanges	Vertical and horizontal linkages: I-O and knowledge exchanges	Disappearance of vertical linkages (CMT firms in MAB/RMB) Disappearance of horizontal linkages: knowledge does not flow. Non-existence of ‘buzz’
Demand conditions	Results do not explain competitive (dis)advantages			Decline of fashion SME retailers (demand market)
Firm strategy, structure and rivalry	Results do not explain competitive (dis)advantages			Foreign low labor costs Mix of productive systems, rapid stock turnover and ICT use Family business with small capacity to innovate Excessive competition over cooperation

Source: own elaboration.

Concerning related and supporting industries, the TGD was built mainly by vertical linkages. Textile headquarters exchanged inputs among them, configuring backward and forward linkages. On the other hand, I-O exchanges between garment wholesaling firms and headquarters reinforced vertical relations. The unavailability of data and results has unfortunately not allowed analysis of the existence of competitive advantages concerning the demand conditions and firms’ strategy, structure, and rivalry.

Between 1961 and 1975, regarding location factors, the strong presence of headquarters and garment wholesaling firms in the TGD was supported by the presence of labor pools in both regional peripheries and metropolitan cities. Concerning related and supporting industries, the ongoing presence of garment wholesalers reinforced vertical linkages with headquarters. However, because of the progressive presence of CMT firms in the MAB/RMB, the TGD also depended on vertical linkages on a metropolitan scale. As in the previous period, data on competitive advantages of demand conditions and firms' strategy, structure, and rivalry are unavailable.

Between 1976 and 2000, competitive disadvantages led to the decline of the TGD as a garment cluster. Despite the unavailability of data on garment wholesaling firms' location in the 1970s, a plausible hypothesis is its spatial concentration in the TGD and the reinforcement of vertical linkages with headquarters. However, through the 1970s, the ongoing disappearance of headquarters caused the decline of I-O exchanges and the specialization of the district as a clothing wholesaling center. However, vertical linkages between clothing wholesaling firms in the district and CMT in the MAB/RMB were intensified. The metropolitan garment cluster strengthened. Thus, regarding location factors, low-cost labor pools in metropolitan cities were fundamental. Finally, data do not indicate the main advantages in relation to demand conditions and firms' strategy, structure, and rivalry.

From 2001 to the present, the earlier competitive advantages that led to TGD specialization as a clothing wholesaling center and the configuration of a metropolitan garment cluster turned into competitive disadvantages, causing the decline of both. Regarding factor conditions, low labor costs turned into high labor costs because of the competition of foreign developing countries. This led to two consequences: CMT firms declined, and clothing wholesaling firms intensified their search for foreign suppliers, importing finished goods or outsourcing production processes. The competitive advantages based on related and supporting industries are also non-existent. I-O exchanges between clothing wholesalers and CMT firms disappeared. Thus, vertical relations within the TGD and between the district and the metropolitan area declined. Conversely, results do not indicate horizontal linkages between clothing wholesalers.

The configuration of global pipelines by clothing wholesaling firms, as a competitive advantage, has not made significant inroads in the configuration of a dense 'buzz'.

Results mainly highlight two strategies in the building of global pipelines. Firstly, there is the configuration of foreign intra-industrial relations. The business strategy of several firms has been to acquire clothing from their suppliers to then copy them, with some changes. This strategy has led to new knowledge being obtained from external agents. Meanwhile, Chinese clothing wholesaling firms developed global pipelines because of their Chinese suppliers. Second, there is the creation of international delegations. The setting up of foreign delegations became a strategy to penetrate new fashion demand markets. On the other hand, there are few clothing wholesaling firms in the district which are delegations of foreign firms. Focusing on the local 'buzz', the network that affords knowledge exchange is insignificant. Knowledge-based vertical linkages are almost irrelevant because of the disappearance of local suppliers, which have been substituted by international ones. Equally, knowledge-based horizontal linkages based on the exchange of knowledge between competitors are almost non-existent. Results indicate that managers from clothing wholesaling firms know each other; however, there is no evidence that they share knowledge or information. Thus, one of the main causes of the decline of the TGD's clothing wholesaling specialization is the weak transmission of knowledge and information between actors.

This situation is reinforced by the absence of common strategies between representative garment-related institutions (TIACP and Es-Moda) to maintain the specialization of the district. Focusing on Es-Moda, the association did not play a significant role in the economic dynamism of the district. Despite it being an active player in the arrangement of fashion shows or lobbying to safeguard firms' private interests, Es-Moda was not able to set up a common strategy to reinforce intra-linkages between firms. Therefore, for all these reasons, knowledge flows within the district did not create a competitive advantage for firms and this was an important factor in the lack of learning and adaptation processes.

The advantages related to demand conditions also declined. The demand market for clothing wholesaling firms (fashion SME retailers) is gradually disappearing. SME

fashion retailers cannot compete against fashion MNRs' business strategies. Finally, concerning firms' strategy, structure, and rivalry, clothing wholesaling firms continue to rely on low labor costs, but from foreign countries. However, the fashion industry pushes them to focus on small-batch production, rapid stock turnover, and the embeddedness of ICT (social networks, e-commerce, etc.) in the sales process. These competitive factors encourage firms to remain in the fashion wholesaling sector. The market structure of the TGD's fashion wholesaling firms as family businesses has in some cases become an obstacle to upgrading specific business processes. There is not enough capital to invest in design (innovation) or to develop new distribution channels, causing the decline of firms. In other cases, firms have developed strategies focused on both expansion to international demand markets and supply to MNRs. Both approaches have become competitive advantages for surviving in the sector. Theoretically, rivalry underlies innovation processes for remaining competitive. However, results seem to show that a lack of cooperation and of building common strategies between firms triggered the rigidity of the TGD's internal structure.

Lock-in drivers: the decline of the TGD's garment cluster

The lock-in concept helps to complement and clarify the factors that have hindered the positive evolution of the TGD as both a garment cluster and a clothing wholesaling center (Table 7.3). Where the functional lock-in is concerned, there are several causes. The first is the disappearance of textile firms from the TGD. The ongoing process of change to a capital-oriented industry caused adaptation to vertically integrated organizations and, consequently, to dependence on internal economies of scale. The main consequence was the consideration of the TGD as a sub-optimal space, moving from the district to outside Barcelona.

The second factor concerns the inexistence of higher value-added garment-related activities such as fashion design. No interviewee highlighted any relationship with the Catalan Fashion Institute (CFI) (*Institut Català de la Moda*, in Catalan), a design school located in the TGD and devoted to the formation of young designers. The information on the CFI website confirms this situation. For example, students do internships with

well-known fashion labels such as Inditex, Burberry, Mango, and John Galiano, among others. There is no mention to the TGD. The inexistence of a strategy to attract new knowledge through younger designers differs significantly from the NYGD (Rantisi, 2002).

Table 7.3 Lock-in dimensions in the decline of the TGD

Lock-in	Causes
Functional	- Disappearance of headquarters.
	- Lack of higher value-added garment-related activities (design).
	- SME family firms without investments in innovation: adaption strategy vs adaptability strategy.
	- Disappearance of fashion SME retailers.
Cognitive	- Reluctance of next generations to manage family businesses.
	- Individualism culture.
	- Competition over cooperation.
Political	- No support by local government.
	- Lack of common strategies among garment-related associations to maintain garment specialization.
	- Rigidness of relations between garment-related associations, causing a lack of lobby pressure.

Source: own elaboration.

A third factor concerns the size of firms and their capacity to adapt to economic challenges. For this reason, clothing wholesaling firms have focused on adaption strategies to be more competitive. From the 1980s, an important strategy was to acquire clothing from foreign suppliers to learn new creative ideas, directly copying them or adapting them to the national demand market. Although some firms design their own models, results reveal that a high percentage of their collections stem from pre-existing models. These adaption strategies have led to a scenario of adjustment of the TGD, reinforcing the lock-in and therefore the progressive decline of the TGD's garment specialization. It is worth highlighting that there are minor instances of textile-related firms that have adopted adaptability strategies.³⁰ However, they do not condition the general trajectory of the district towards its decline.

³⁰ One case is Sedatex, a vertically integrated firm devoted to the development of all fabric production stages. According to its website, it produces a set of fabrics oriented to fashion and technical markets. Its showroom was located in the TGD, but, along with its headquarters, it has moved to the RMB.

The fourth factor relates to the demand market. The retirement of fashion SMEs' managers and the rare ability to compete with MNRs have caused the decline of the sector, directly affecting the TGD's clothing wholesaling firms. One of the alternatives for clothing wholesaling firms is to supply MNRs' retailers. However, the nature of the fashion industry as a buyer-driven commodity chain means that clothing wholesalers would rather keep supplying SME firms than bear the pressure of delivery deadlines to MNRs' firms.

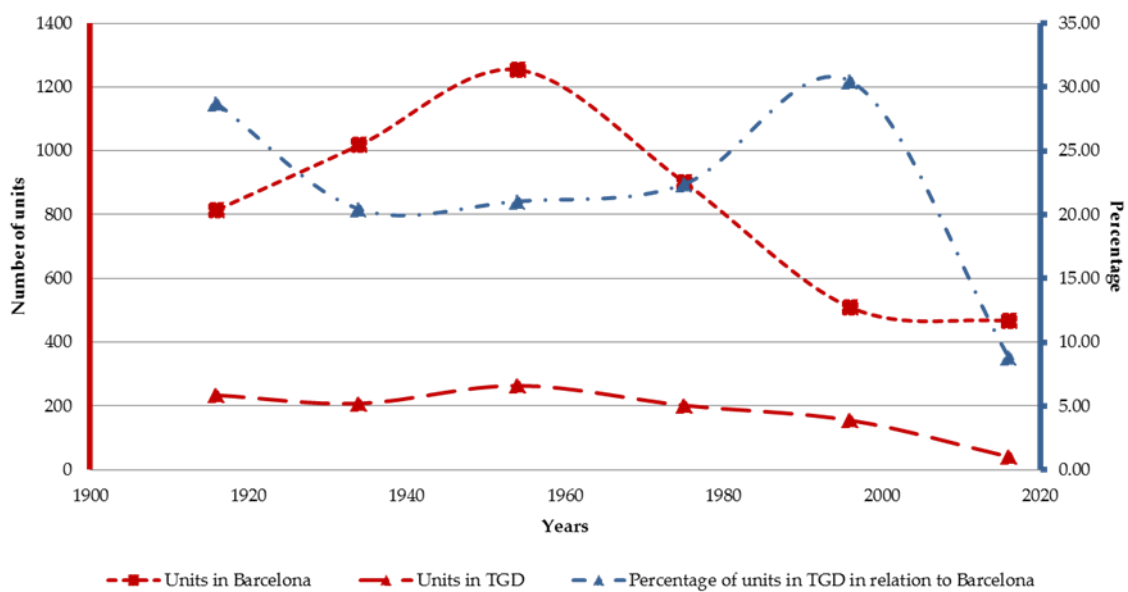
The functional lock-in reinforces the cognitive lock-in of the TGD. The ongoing decline of the clothing wholesaling specialization caused by the closure of firms, an environment based on SME family businesses, and the progressive pressure of both international and local MNR competitors deter next generations from continuing the family clothing wholesaling businesses. A second factor is the individualism culture, resulting in the absence of mutual cooperation between garment associations. The lack of success of common strategies to reinforce knowledge and information flows highlights that competition prevails over cooperation, causing, for instance, the almost disappearance of Es-Moda.

Regarding the political lock-in, the configuration of local laws to make wholesaling activity difficult and the initial support for the creativity-based project Zone 11 depict the orientation of the local government to change the TGD's economic structure. A second highlight is the present role of the TIACP within the district. The lack of textile firms in the district means that the main interest of the TIACP is not focused in the TGD, although it is still located within the district. This fact materialized in the rigidity of cooperation linkages with Es-Moda in the building of common strategies to maintain the district's garment specialization. This implies the inexistence of shared projects to spill over knowledge (global and local pipelines) between actors to reinforce an almost non-existent 'buzz'. Another consequence is the lack of a lobbying pressure group to maintain the specialization of the TGD.

7.1.3 The TGD as a path in the evolution of the garment-related industries: CLC to explain ILC

The evolution of the TGD has partly followed the evolution of the predominant garment-related industries, in this case the textile industry and the clothing wholesaling sector. The CMT industry is not included because of its relative role within the district. The TGD is experiencing an exhaustion phase, and particularly a lock-in stage. This situation is depicted through the number and percentage of units (headquarters, garment wholesaling, and CMT) within the TGD. Since 1954, they have gradually reduced (from 264 units in 1954 to 41 in 2016) (Figure 7.3). In 1996, the TGD comprised 20.45% of the units in the whole of Barcelona; today, this figure is only 8.80%.

Figure 7.3 Number and percentage of units in Barcelona and in the TGD, 1916–2016



Source: own elaboration.

Comparing the evolution of the TGD with that of the textile industry, the absence of firms within the district does not represent the total decline of the industry. Although the number of workers has decreased progressively since 2000 (from 15.39% to 7.76% in relation to the total number of Catalan industrial workers)³¹ and the contribution to

³¹ Data obtained from Catalan Statistical Institute (*Instituto de Estadística de Catalunya*, in Spanish).

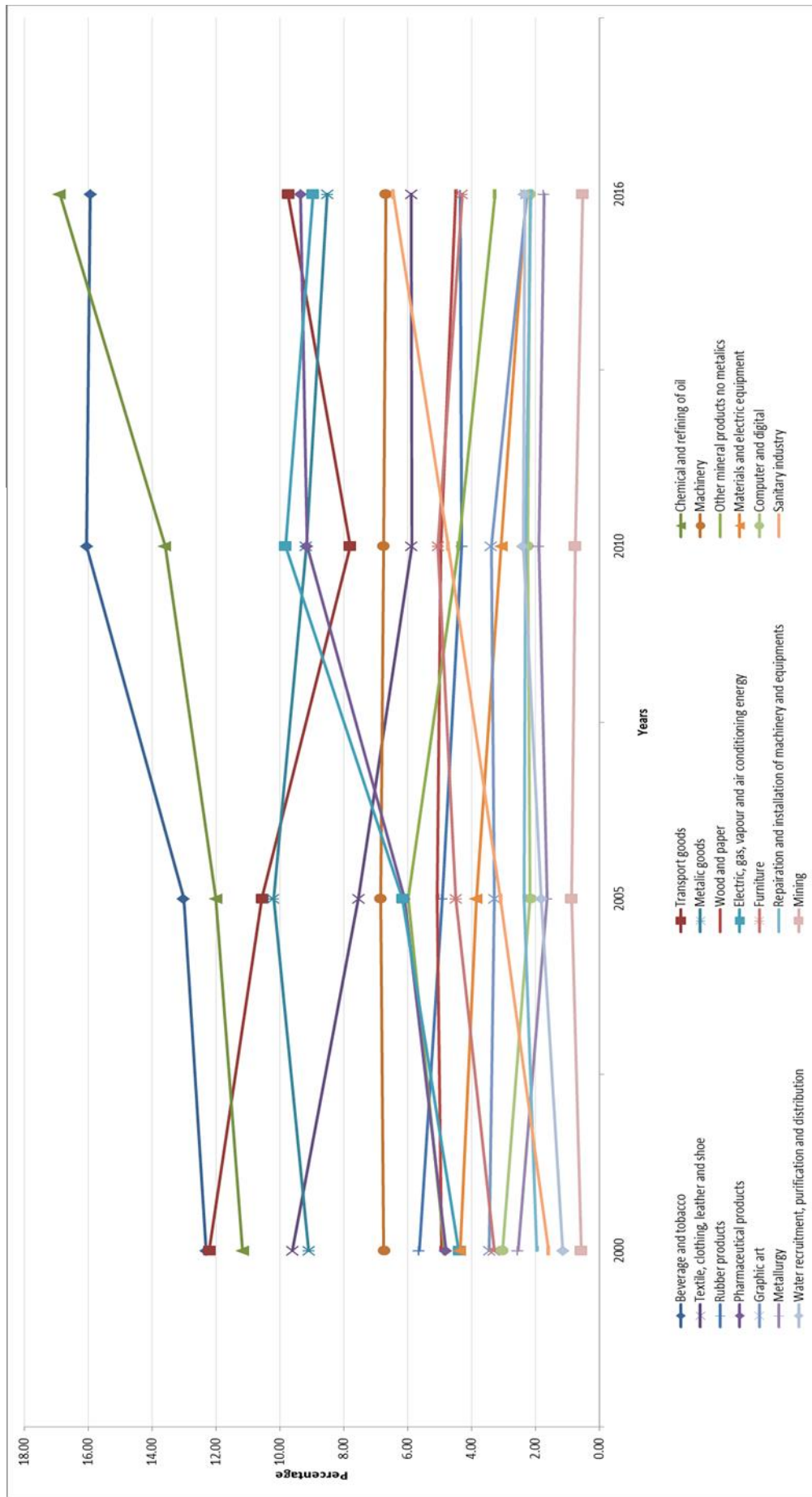
the Catalan industrial GDP has also decreased from 9.61% to 5.88%, the downturn of the current textile industry has slowed (Figure 7.4). The lessening of the downturn may be explained by the success of those strategies stemming from the restructuration plans, such as the search for more competitive demand markets and the ongoing shift from a labor-oriented to a capital-oriented industry. Incumbent firms (from 1900 to 1960 and those created in the 1980s³²) have adapted more successfully to technological challenges, a situation resulting from complementing fashion and more specialized demand markets (technical textiles), and the adoption of vertically integrated organizations. These results point in the same direction as previous studies about the evolution of mature textile industries in European countries (Hassink, 2007). Therefore, the textile industry seems to be entering into a development phase, where the number of firms has grown from 2,735 in 2012 to 4,179 in 2017 (Generalitat de Catalunya, 2012, 2017). Future data about the contribution to the Catalan industry GDP will elucidate this hypothesis, allowing a more accurate analysis.

This context has spatial consequences. The control of all processes within the value chain means that firms rely more and more on internal economies of scale at the expense of external economies. Therefore, the need to be proximal to other similar firms within the industry is rare. As a consequence, metropolitan and regional settings have become optimal spaces for the textile industry, because they take advantage of urbanization economies (proximity to transport infrastructures such as highways, trains, or seaport). In contrast, the TGD is considered a sub-optimal space. It is worth emphasizing that a complete vision of the structure of the industry in relation to the size of the firms would contribute to the accuracy of the present discussion.

In relation to garment wholesaling firms, the unavailability of precise disaggregated data causes a lack of accurate discussion. However, several insights indicate that the sector is experiencing a decline phase. Firstly, the ongoing importance of MNRs' retailers in the fashion industry means that the wholesaling trade has an increasingly minor presence in the clothing value chain. Results also show the ongoing reduction of

³² Results indicate that 17.71% of textile firms were created in the 1980s. A plausible hypothesis is that these firms are a result of mergers of pre-existent ones.

Figure 7.4 Evolution of the contribution of industries to the Catalan industrial GDP, 2000–2016



Source: own elaboration.

the number of fashion SME retailers, which in turn causes a decrease in clothing wholesaling firms. On the other hand, to supply MNRs is considered the last possibility for surviving clothing wholesalers because of the buyer-driven nature of the fashion industry. However, those SME wholesaling firms that create their own label, control other processes within the value chain (i.e., production, design), and incorporate ICT tools are more likely to survive within the sector. In spite of that, the pressure of MNRs is bringing about its ongoing disappearance.

7.2 TGD as a New Industrial Cluster

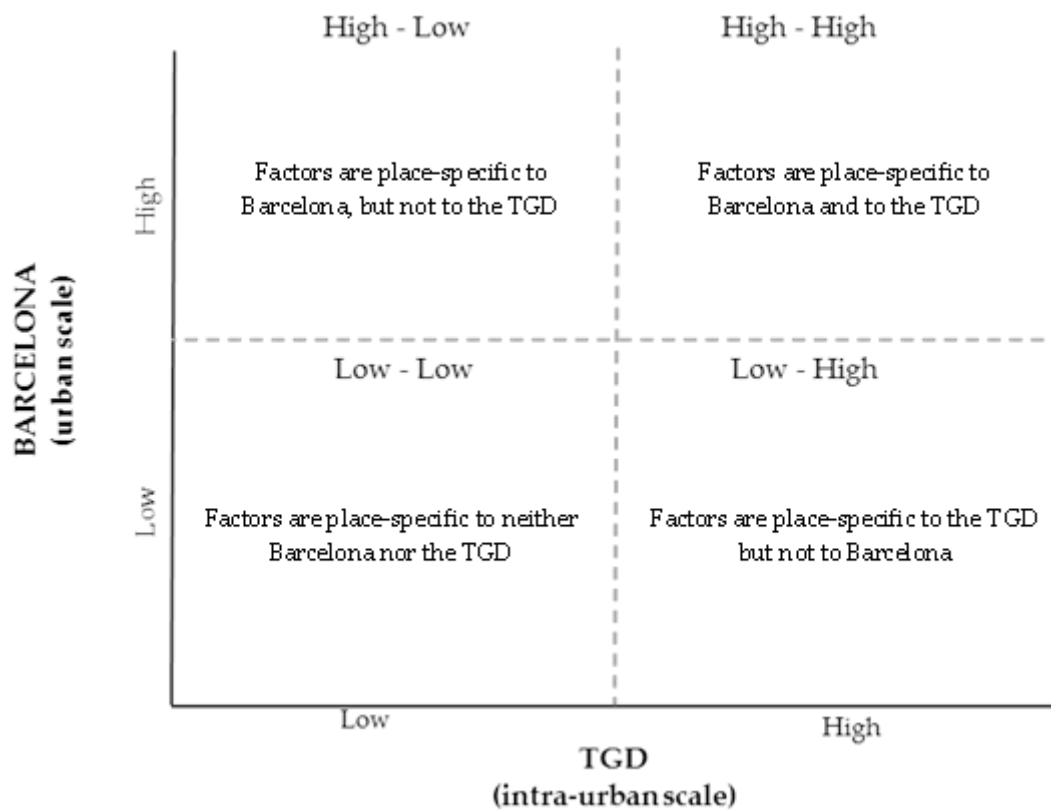
7.2.1 Factors in the TGD's configuration as an NIC

Knowledge- and creativity-based firms locate in Barcelona because of the existence of a set of factors that attract them in order to be competitive. These factors are human capital, knowledge pools, institutional thickness, soft and hard factors, and aesthetic and semiotic factors. However, in some cases, these factors bloom notably in some intra-urban spaces because of a particular induced cluster policy (22@Barcelona in Barcelona or False Creek in Vancouver, among others), or by the arrangement of common and collaborative projects by a set of firms (Silicon Sentier in Paris or Silicon Gràcia in Barcelona). In order to analyze the importance of those factors in the attraction of firms to Barcelona and to the TGD, a chart based on four quadrants has been designed, highlighting their place specificity and scale (Figure 7.5). The x-axis represents the place specificity of the corresponding factor on an intra-urban scale (TGD). The y-axis illustrates the place specificity of the factor on an urban scale (Barcelona). Factors are represented by circles.

The location of a factor in the *High-Low* quadrant (top left) means that it is strongly place-specific to Barcelona, but not to the TGD. Therefore, it explains why a firm locates in Barcelona, but it does not explain its location within the district. The location of factors in the *High-High* quadrant (top right) signifies that they are place-specific to both Barcelona and the TGD. Thus, a firm is attracted to Barcelona due to the presence of that factor and also locates in the TGD because it thrives in a remarkable way. The

Low-Low (bottom left) quadrant groups factors that are not place-specific to either Barcelona or the TGD. Finally, the *Low-High* (bottom right) quadrant denotes that factors are place-specific to the TGD but not to Barcelona. Analysis of the factors through this chart highlights, on the one hand, the most important factors that firms consider to locate in Barcelona, and, on the other hand, the factors that emerge with more significance attracting firms to the TGD.

Figure 7.5 Place specificity of factors that attract knowledge- and creativity-based firms to Barcelona and the TGD

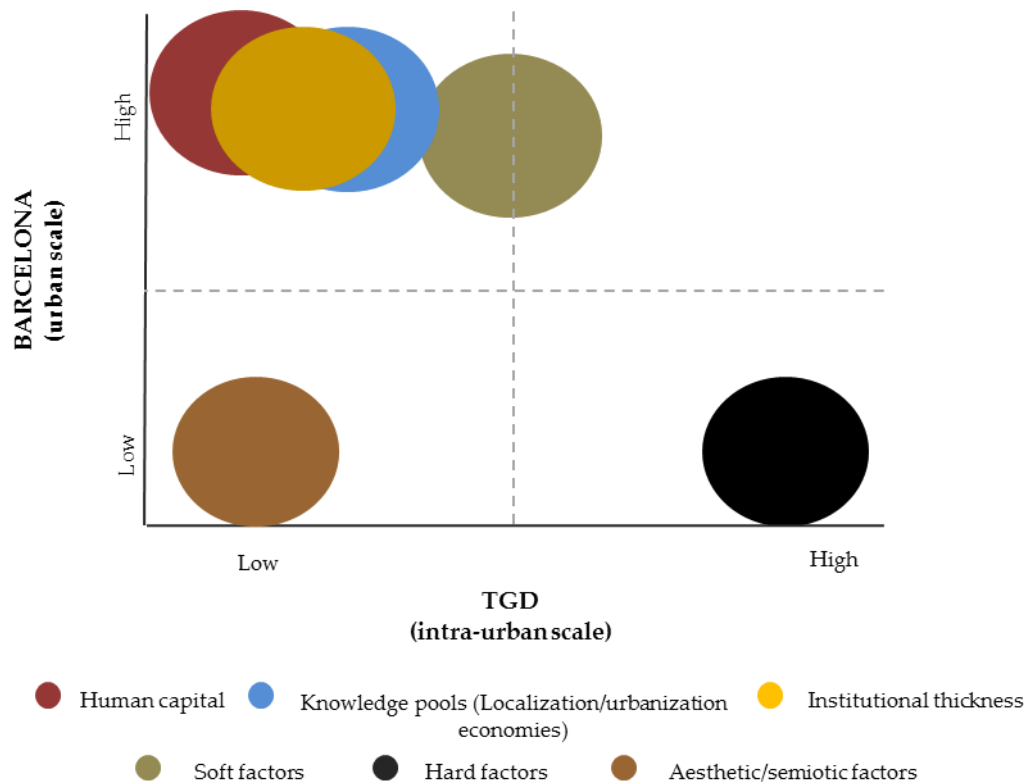


Source: own elaboration.

Results from in-depth and informal interviews with CWs and other actors involved in knowledge-, creativity-, and ICT-based industries may be considered a proxy for understanding spatial patterns of knowledge- and creativity-based firms. Focusing on hard factors, these are considered as *Low-High* factors (Figure 7.6). The presence of large business spaces causes the district to be considered an optimal space. The former

storage spaces and social courts have become in CWs spaces for knowledge- and creative-based firms. It is also worth emphasizing that the historical specialization of the TGD as an office center still has a very significant imprint. This situation is mirrored in the strong presence of offices on some the buildings' floors or the existence of entire building devoted to offices. In terms of accessibility, the urban centrality of the TGD means that a set of transport infrastructures are concentrated in the district, facilitating the commuting of both Barcelona and out-of-town workers.

Figure 7.6 Influence of location factors for knowledge- and creativity-based activities to settle in Barcelona (urban scale) and in the TGD (intra-urban scale)



Source: own elaboration.

Soft factors are a *High-Medium* factor. The high percentage of international co-workers may be considered a proxy for the importance of soft factors in Barcelona. However, some assets are noteworthy within the TGD and in its surroundings. Interviewees remark on the presence of trendy bars and restaurants, or some specialized retail firms (cultural environment), and especially the existence of green public spaces such as the

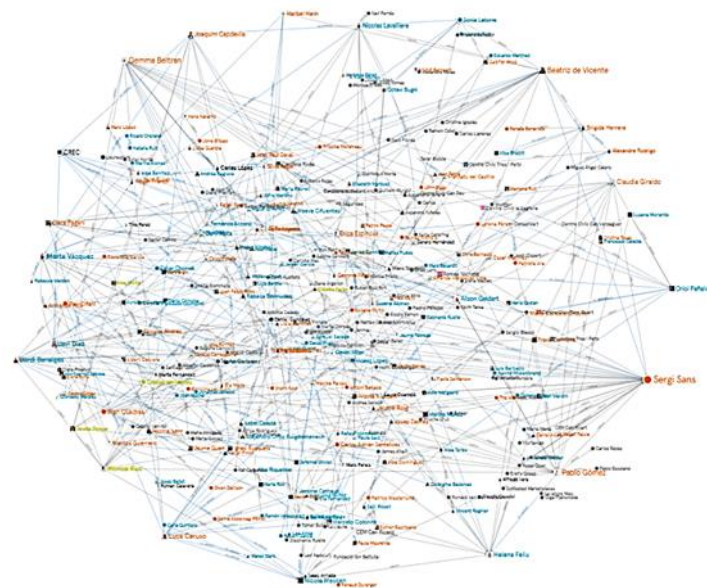
surroundings of Arc del Trioumf (environmental amenities). Therefore, the importance of soft factors in Barcelona is fundamental to attract the so-called creative class. However, the specificities of the TGD also have an influence on an intra-urban scale. They convert the district into an attractive urban area.

Knowledge pools are considered a *High-Low* location factor. Knowledge pools can be framed within localization economies, referring to that knowledge that concerns the same sector, or within urbanization economies, referring to that knowledge that stems from a variety of sectors. Knowledge- and creativity-based activities benefit from both. Results highlight that knowledge pools have a minor role as a location factor within the TGD. One reason for this is the non-existence of common projects that bind firms together, affording cooperation. Zone 11 aimed to convert the TGD into the Eixample's creative district, attracting and concentrating knowledge- and creativity-based firms. However, the lack of local government support entailed its rapid decline and, consequently, that of the possibility of building a knowledge-based network within the district. Secondly, bars and restaurants are not considered as meeting places to exchange informal knowledge. Results for CWs' social patterns highlight that bars and restaurants are mainly spaces for leisure, where co-workers from the same CW meet. There is no exchange with other workers within the district; consequently, informal knowledge and information flows are inexistent. These results are in the line with those of Heebels and van Aalst (2010). Despite the absence of knowledge pools within the TGD, it is worth highlighting their existence within CWs, configuring both micro-localization and micro-urbanization economies. The spatial concentration of co-workers strengthens the intensity of knowledge and information flows within each CW, creating a bounded knowledge-based network reinforcing the community and, consequently, the configuration and strengthening of a 'buzz' (Figure 7.7). The 'buzz' is also reinforced by CWs' community builders, who know the needs of each co-worker and seek connections with others in order to satisfy their requirements. There are two strategies to keep the 'buzz' within CWs vibrant: firstly, the arrangement of social events such as breakfast in the community, sports activities, and so on; and secondly, the organization of workshops, conferences, seminars, and so on by co-workers and

external agents. Through the latter, new knowledge is supplied to the network through global and local pipelines.

In the case of global pipelines, the presence of remote workers or international external agents provides knowledge to the network from international sources. On the other hand, local external agents from CWs devoted to different specializations are

Figure 7.7 Map of relations between co-workers within CREC Coworking.



Source: own elaboration.

fundamental players in the building of local pipelines (Figure 7.8). Both pipelines denote the importance of knowledge pools in Barcelona, and, consequently, the significance of localization and urbanization economies on the urban scale. While some workshops may be delivered by managers from other TGD CWs, it does not necessarily mean the building of knowledge and information flows between them. Results do not highlight their continued collaboration on common projects. Consequently, CWs from the TGD build bounded knowledge-based networks.

Figure 7.8 Instances of workshops imparted by actors external from CWs in the TGD



Source: own elaboration

This process may be extrapolated to other firms within the district. The lack of common projects enhancing knowledge exchange within the TGD reinforces the boundedness of firms' networks. In sum, results about CWs evidence that there is a two-level benefit from knowledge pools. Firstly, CWs take advantage of the innovative milieu of the city to add new co-workers and search for local experts to reinforce the 'buzz' through the creation of global and local pipelines. This advantage materializes in a bounded knowledge-based micro-network within each CW. Thus, co-workers benefit from micro-externalities.

The lack of an institutional thickness supporting a Zone 11-type project serves to strengthen that situation. However, focusing on an urban scale, the institutional thickness is fundamental in the attraction of knowledge- and creativity-based firms to Barcelona. Barcelona's policy shift to a knowledge- and ICT-based economy meant that the city become a centripetal attraction point for both innovation-related firms and highly skilled workers. This process has led to Barcelona becoming an innovative milieu, leading economic changes in urban plots like the TGD. Institutional thickness may therefore be considered a *High-Low* locational factor. Human capital is a *High-Low* factor. Results do not emphasize it as a location factor on the intra-urban scale, but they implicitly underline it as an essential factor for settling in Barcelona. The diversity of knowledge- and creativity-based firms, and the range of highly skilled workers within CWs in the TGD, may act as a proxy for the importance of qualified labor pools in the

city. Finally, the least relevant factor at the urban and intra-urban scale is the aesthetic/semiotic one.

7.2.2 Analyzing the TGD as an NIC

Focusing on the NIC's classification, the TGD is not framed within a specific type of cluster, but includes characteristics of several of them. The current TGD comprises features of spontaneous clusters, significant new economy precincts and cultural quarters, and incipient new industry districts (Table 7.4). Market-led forces have guided the transformation of the TGD into an NIC. The decline of garment-related firms related to the fashion industry and the increasing importance of knowledge-, creativity-, and ICT-based industries in local development have led the economic transformation of the district. However, the local government has also had a more implicit role in the economic change of the TGD. The development of local laws that hindered garment-related economic activity and support of creativity-based projects are considered important actions in the economic transformation of the TGD. Nevertheless, there was no specific plan by the local government to transform the TGD like the 22@Barcelona in Poblenou neighborhood. The shift from a garment cluster to an NIC has mainly been driven by a bottom-up process.

The TGD's features coincide, in a great manner, with the features of the signifying new economy precincts and cultural quarter. In terms of its physical size, the district occupies 0.3 square kilometers, being smaller than the theoretical extent. In relation to leading-edge firms, Digital Legends (ICT firm), El Terrat (cultural firm), Violan Studio (creative firm), and Labcoop, MOB, CREC, and Aticco (co-workings) are important contributors encouraging the district's economic change. In the lodging industry, there are no leading-edge firms, but the building of Yurbban hotels (Smart Rooms Company) has had an important role in changing the image of the district into a fashionable urban space.

Table 7.4 Comparison between Hutton’s clusters features and TGD characteristics

Clusters	Features	TGD’s features
Spontaneous cluster	Market-drive clusters	<ul style="list-style-type: none"> • Decline of the garment-related industries focused on fashion and growth of knowledge-, creativity- and ICT-based activities. • Development of local laws for hindering wholesaling-based activity.
	0,5 – 1 kilometer square	<ul style="list-style-type: none"> • 0,3 kilometer square.
Signifying new economy precincts and cultural quarters	Concentration of leading-edge firms	<ul style="list-style-type: none"> • Videogame industry (Digital Legends). • Cultural and creative industries (El Terrat and Violan Studio). • Co-workings (Labcoop, MOB, CREC and Aticco). • Lodging industry (Yurbban Hotels)
	Environmental and consumption amenities	<ul style="list-style-type: none"> • <i>Passeig de Sant Joan</i> and proximity to green public spaces (<i>Ciudadella</i>). • Upscale and trendy bars and restaurants and proximity to the Borne.
	Cultural markers and re-imaging effects	<ul style="list-style-type: none"> • Location of art galleries. • Change of perception: from insecure wholesaling-based to a trendy and fashion urban area.
	Leading role in reterritorialization processes within the inner city	<ul style="list-style-type: none"> • Reterritorialization of the TGD. • Embedded into <i>Eixample’s</i> economic dynamics.
Incipient new industry districts	Early forms of transition evident	<ul style="list-style-type: none"> • A great economic transformation during the last five years.

Source: own elaboration and Hutton, 2008.

The revitalization of the *Passeig de Sant Joan*, the proximity to green urban spaces, and the presence of a range of upmarket and trendy bars and restaurants define the new environmental and cultural amenities and, consequently, the change in patterns of consumption. Moreover, proximity to the Borne represents an advantage for workers to benefit from leisure places.

In respect of cultural markers, the incipient settlement of art galleries in the district represents the most significant and explicit landmark in the process of changing collective perception of the TGD. In addition to the aforementioned leading-edge firms, art galleries are contributing to changing perception of the district as an insecure urban area. This insight has long been associated with several factors. Firstly, there was the

lack of economic diversification. The specialization in wholesaling and office-based activities might cause the desertification of the district in the afternoon and night hours, causing a perception of it as insecure. Secondly, the presence of the Chinese community led to the TGD being known as the Chinatown of Barcelona. In Western societies, the concept of Chinatown is associated with dangerous, insecure, and low socioeconomic status neighborhoods. The above features led to the reterritorialization of the TGD, its image becoming that of a socioeconomically vibrant and fashionable urban area. Two further factors contributed considerably to that process: the presence of buildings (some of them with high-value architecture) converted into upmarket housing, and the renovation of concrete micro-urban spaces such as the deprived *Passatge de les Manufactures*. The latter is strongly associated with the building of the *Yurbban* hotels and the settlement of the famous and upmarket restaurant *Flax & Kale*. Focusing on the physical consequences, the reterritorialization of the TGD has not entailed the reconfiguration of its physical boundaries because of its marked urban limits. However, spatial cluster analysis evidences that the TGD's present knowledge- and creativity-based economic dynamic is being embedded within the economic logic of the *Eixample*. Nevertheless, the historical-, economic-, and urban-related specificities of the TGD demand that the district remains an original and genuine urban economic space.

7.3 Summary

The discussion of results allow to elucidate the mechanisms, by which the TGD configured and evolved from a garment cluster, to a clothing wholesaling center and, finally, to a NIC.

First, the urban building of the TGD and the move of headquarters from Sant Pere to the district at the end of the nineteenth century resulted from the displacement of agglomeration economies from Sant Pere to the TGD. Headquarters located in the district still benefited from localization economies (I-O exchanges) and urbanization economies (transport infrastructures and the proximity to the CBD). During the nineteenth century, the evolution of the TGD from a garment cluster to a clothing

wholesaling center resulted from the change of economic relations within the district and the external relation with the MAB/RMB and the regional periphery as well. Thus, in different periods of time, the TGD experienced a set of processes that characterized its evolution. The agglomeration economies at different scales underlie in the geographical multi-scalar relations. Thus, the evolution of the TGD until the present is conditioned by the evolution of the agglomeration scales at the intra-urban, metropolitan and regional levels.

Second, the competitive advantages and disadvantages of the TGD as a garment cluster and clothing wholesaling center aid to understand better configuration and evolution. The TGD as garment cluster evolved positively because of, mainly, a set of competitive advantages such as the low-cost labor and the existence of vertical relationships based on I-O exchanges. However, between 1976 and 2000, the textile industry experienced a set of restructurings entailing the disappearance of headquarters in the TGD and remaining the clothing wholesaling firms. This process was based on two competitive advantages. On the one hand, the presence of CMT firms in the MAB/RMB because of the low-cost of labor and, on the other hand, the configuration of vertical relationships based on I-O linkages. Between 2001 and 2018, the TGD as a clothing wholesaling center is disappearing due to a set of causes. First, the labor costs have increased compared to the foreign competitors. This fact causes the decrease of CMT firms in the MAB/RMB and, consequently, the I-O exchanges. Second, there are not horizontal exchanges within the TGD. The absence of a buzz within the district entails the absence of knowledge and information flows. Third, the decline of the demand market causes the close of wholesaling firms. Fourth, firms have little capacity to invest in innovation (familiar businesses). Fifth, competition lies over cooperation. Therefore, clothing wholesalers survive taking advantage of low-cost workforce in foreign countries, mixing productive systems (collections and *pronto moda*) and the use of ICT.

Third, the lock-in allows an evolve perspective of the causes of the decline of the TGD. As for the functional lock-in, its main causes are related to, first, the lack of high-value economic activities such as design-based firms; second, the adoption by firms of adaptation strategies; and, third, the disappearance of the demand market (fashion

SMEs retailers). The cognitive lock-in is based on the reluctance of next generations to manage family businesses, an individualism culture and a collective thinking that situate competition over cooperation. Finally, a political lock-in emerges through the little support of the local government, the lack of cooperation between garment-related association causing the scarce of common strategies to maintain the TGD's garment specialization and to create a lobby pressure.

Fourth, the CLC shows that the TGD does not represent the evolution of the textile industry. Despite the textile industry has experienced a decline since the second half of the twentieth century, there are signs of a slight recovery. This fact does not results in an increase of headquarters within the TGD. The causes lie in that the firm's industry are adopting vertical-integrated structures and focusing of specialized demand markets. Consequently, firms depend more on internal than on external economies. Geographically, firms locate outside Barcelona, in the RMB with the aim to take advantage of urbanization economies based, mainly, on the proximity of transport infrastructures. Therefore, the TGD has become in a sub-optimal space for the textile industry. In the case of the clothing wholesaling sector, the information about its evolution is scarce. However, in-depth interviews depict that the TGD still is considered as an optimal space for the sector. Nevertheless, the competition of MNRs is causing its decline and the disappearance of the clothing wholesaling specialization of the TGD.

In the case of the TGD as a NIC, results about localization factors, the CWs show the importance of hard factors (the availability of optimal business spaces and urban accessibility). On the other hand, the location of CWs in the TGD is not only understood by intra-urban factors, but also by urban factors. Thus, the existence of human capital, knowledge spillovers, an institutional thickness and soft factors at a Barcelona scale allow to understand the location of firms in the city. On the other hand, the features of the TGD respond to different types of NICs. The TGD comprise features of spontaneous clusters because its configuration is based on market-led forces. Second, the district is also a signifying new economy precincts and cultural quarters because, first, the concentration of leading-edge firms in the videogame industry, in the cultural and creative industries, in the co-working sector and in the lodging industry;

second, the existence of cultural and environmental amenities (art galleries and green public spaces); third, the presence of cultural makers (art galleries); and the reterritorialization of the district (change of district's perception and embeddedness into Eixample's economic dynamics). Finally, the TGD is also characterized as an incipient new industry district because of the great economic transformation during the last five years.

CHAPTER 8 CONCLUSIONS

8.1 Achievement of objectives and conclusions to hypotheses

8.1.1 Conclusions to the main objective

The main objective is the clarification and analysis of the main factors underlying the configuration of the TGD as a garment cluster and an NIC, and examination of those factors involved in its transition. The main hypothesis was that the configuration and evolution of the TGD responded to multi-scalar and interrelated economic processes, the local scale having a strong explanatory role due to Barcelona's specific historical contingencies and the TGD's urban specificities.

The hypothesis is validated. The TGD's economic transition from a garment cluster to an NIC cannot be understood without taking into account different economic processes at different scales. In the case of the TGD as a garment cluster and specialized center of clothing wholesaling, discussion of the results has allowed us to highlight that the TGD depended on multi-scalar economic processes, conditioning the creation of agglomeration economies at intra-urban, metropolitan, and regional scales, and affecting the evolution of the economic spaces until the lock-in. On the other hand, in the creation of the NIC, the urban and intra-urban scales were fundamental. Barcelona's orientation to a knowledge economy has entailed the development of a set of factors (inputs) attracting knowledge and creativity firms. On the other hand, the specific factors that emerge from the district, such as the urban centrality, accessibility, and the specific urban characteristics of the TGD, corroborate the importance of hard factors on an intra-urban scale.

Next, we analyze the conclusions to the specific objectives.

8.1.2 Conclusions to first objective

The first objective concerns determination of the mechanisms that generated economic agglomerative advantages in the TGD in the emergence of both the garment cluster and NIC in the twentieth and twenty-first centuries. The hypothesis related to this objective was that the mechanisms that facilitated the emergence of agglomeration economies in the configuration of the two clusters were different. The garment-related firms concentrated spatially in order mainly to reduce I-O costs. In contrast, firms related to knowledge and creativity concentrate in the district to take advantage of formal and informal knowledge and information flows.

The hypothesis is validated with some considerations. The TGD's garment cluster and clothing wholesaling center did not only depend on intra-urban agglomeration economies based on I-O exchanges. The TGD depended on geographical multi-scalar agglomeration economies based on I-O exchanges, labor pools, and, to a lesser degree, knowledge spillovers. Between 1900 and 1975, the TGD's garment cluster benefited from intra-urban localization economies based on I-O exchanges (among headquarters, and among headquarters and clothing wholesaling firms) and, to a lesser degree, on knowledge flows. On the other hand, regional localization economies also emerged because of the availability of labor pools in the regional periphery, helping textile factories to find workers easily. In the case of intra-urban urbanization economies, the proximity of the TGD to transport infrastructures was taken advantage of to connect headquarters with their own factories in watersheds.

Although the TGD specialized in clothing wholesaling between 1976 and 2018, its positive evolution was conditioned by multi-scalar agglomeration economies. The location of CMT firms in metropolitan cities caused a spatial separation of economic activities within the value chain forming a metropolitan cluster. Focusing on localization economies, the TGD benefited from knowledge spillovers on an intra-urban scale. The settlement of TIACP in the district could entail the creation of knowledge and information flows in the beginning of the period of time. The I-O exchanges between clothing wholesaling and CMT firms denoted the generation of metropolitan localization economies. The metropolitan localization economies also

emerged through the availability of labor pools in metropolitan cities, helping CMT firms to access labor easily. Intra-urban urbanization economies is still important at an intra-urban level. Transport infrastructures became important for clothing wholesaling firms because they facilitated the TGD's accessibility to out-of-town purchasers.

In relation to the TGD as an NIC, the mechanisms that facilitate the emergence of localization economies are not important for those firms that comprise the cluster. However, if we focus the scale of analysis on CWs, knowledge and information flows have a great influence on the attraction of firms, which benefit from micro-urban localization economies. Urbanization economies also stem from the presence of urban and regional transport infrastructures (public bicycles, buses, subway, and commuter trains) and, to a lesser degree, the existence of cultural and environmental amenities. Therefore, intra-urban urbanization economies are important for knowledge- and creativity-based firms within the TGD.

8.1.3 Conclusions to second objective

The second objective concerns the definition of the TGD's garment cluster in relation to cluster theories to highlight the causes of its lock-in from the second half of the twentieth century to the present. There are two hypotheses. The first is that the main advantage causing the positive evolution of the TGD as a garment cluster was the presence of related and supporting industries. The disappearance of headquarters entailed the loss of this advantage, bringing about the decline of the garment cluster. The hypothesis is validated with some considerations. The presence of related and supporting industries is an important competitive advantage to understand the TGD evolution. However, the influence of location factors, demand conditions, and firm strategy, structure, and rivalry helps to explain the configuration and evolution of the district.

Regarding location factors, in the first half of the twentieth century, water resources and low-cost labor pools played an important role. Factories whose headquarters were located within the TGD moved to watersheds in order to benefit from water resources and low-cost labor pools and consequently reduce production costs. On the other

hand, the availability of large premises at the underground level may be considered an advantage for the location of headquarters, which afforded large storage areas. Between 1961 and 1975, low-cost labor pools remained the main competitive advantage. Factories related to headquarters in the TGD continued to locate in the watersheds. However, between 1976 and 2000, this competitive advantage appeared in metropolitan cities with the location of CMT firms which supplied clothing wholesalers within the district. Since the twenty-first century, low-cost labor pools have become a disadvantage. The strengthening of economic global flows has given rise to the importation of clothing from developing countries and the outsourcing of production processes to lower-labor cost countries.

In the case of related and supporting industries, results from spatial cluster analysis and in-depth interviews show the configuration of vertical and, to a lesser degree, horizontal linkages within and outside the TGD throughout the twentieth century. Between 1900 and 1960, competitive advantages were related to vertical linkages (I-O exchanges) among headquarters, and between headquarters and garment wholesaling firms. This situation was reinforced between 1961 and 1975 with the growth of garment wholesalers within the district. However, between 1976 and 2000, headquarters disappeared and therefore so too did vertical relations within the district. Some interviewees pointed out the remaining I-O exchanges within the district because of the location of CMT firms. However, the great presence of them in the MAB/RMB meant that I-O flows were more important to the metropolitan area. It is worth pointing out that some clothing wholesalers started to be supplied from foreign countries, establishing international supply linkages. In relation to horizontal linkages, in the mid-1970s, the political and economic role of the TIACP led to consideration of the association as an important meeting point to exchange knowledge and information. Finally, between 2001 and 2018, vertical and horizontal linkages became competitive disadvantages. The decline of CMT firms in the MAB/RMB caused the strengthening of international I-O flows. Horizontal linkages are also non-existent because knowledge flows disappeared. Therefore, there is no 'buzz' within the TGD because there is no interaction between firms. On the other hand, results highlight that some surviving firms have created global pipelines through the configuration of both intra-industrial

relations and international delegations. However, there are no mechanisms (such as partnerships between associations) to transmit knowledge of global pipelines to reinforce the weak 'buzz'.

In relation to demand conditions, the lack of information has not allowed analysis of this aspect in the twentieth century. However, in-depth interviews have yielded information about this issue since the beginning of the twenty-first century. The decline of fashion SME retailers has become the main disadvantage for clothing wholesalers. Fashion SME retailers are the main purchasers from clothing wholesalers within the TGD. The retirement of managers, and, particularly, the progressively competition of fashion MNR retailers, is driving the progressive decline of the fashion retailing sector.

Finally, there are no data concerning firm strategy, structure, and rivalry during the twentieth century. However, information obtained from in-depth interviews stresses some highlights since 2001. In relation to firm strategy, the main competitive advantage for surviving firms is related to the mix of two productive systems, collections and *pronto moda*. The first consists of small batches of production for future seasons, while the second is related on the standardized production of current collections. For the development of the *pronto moda* system, firms mainly rely on foreign low-cost workers located in developing countries. Concerning firms' structure, the small size of family businesses leads to difficulty in investment in innovation. Therefore, they depend strongly on the reduction of labor costs and the intensive use of social networks and e-commerce platforms. Finally, regarding rivalry, results about the weak role and cooperation of Es-Moda and TIACP in weaving common strategies to maintain the TGD as a garment center reveal a lack of cooperation between institutions.

The second hypothesis was that although the lock-in of the garment cluster results from economic and political multi-scalar processes, the lack of common strategies of garment-related actors to protect the district's specialization is a salient factor. The hypothesis is validated with some considerations. The lack of common strategies of garment-related actors to protect the district's specialization highlights a political lock-

in, which somewhat explains the complexity of the TGD's lock-in. However, results show the importance of functional and cognitive lock-ins.

The functional lock-in comes from four factors. Firstly, there was the disappearance of headquarters from the district or their move to the regional periphery, and the continuing transformation of the textile industry into more specialized demand markets. This situation meant that the TIACP did not focus its interest in the TGD, and, consequently, the non-existence of partnerships with other institutions to build common strategies to maintain the garment specialization. The second factor concerns the absence of higher value-added activities such as designers, and the little involvement of design schools within the district. A third factor is related to the size of firms and the limited capacity for significant investments. Clothing wholesaling firms focus on adaption strategies. They acquire clothing from foreign suppliers to learn new ideas, or to copy or adapt garments. There is no investment in innovation. Therefore, adaption strategies lead to an adjustment scenario of the TGD, reinforcing the lock-in. The fourth factor is the disappearance of the fashion retailing sector based on SMEs.

Cognitive lock-in emerges from the next generations desire not to keep running clothing wholesaling firms. Both the low expectations of an upgrade of the clothing wholesaling sector and the lack of success in building strategies for the district's survival push next generations to refuse to be firms' new managers. Finally, the political lock-in is conducted by both the absence of support from the local government and the lack of cooperation between garment-related associations to maintain the garment specialization through the creation of a lobby pressure group.

The positive answer to both hypotheses means that the objective has been achieved.

8.1.4 Conclusions to third objective

The third objective was examination of the role of the TGD in relation to the predominant garment-related industries. The hypothesis was that the evolution of the TGD as a garment cluster and then as a clothing wholesaling specialization did not follow the general evolution of the predominant garment-related industries. The hypothesis is validated, with some considerations.

The textile industry seems to be experiencing the first sparks of a development phase. Data on the contribution to the Catalan industrial GDP from 2000 to 2016 show that the chemical, beverage, transport products, pharmaceutical, and energy-related industries are the most important. However, despite the textile industry's contribution decreasing from 9.61% to 5.88%, it has lessened its rate of decline. Results based on data from TIACP and CIT show that firms are focusing on competitive strategies based on the complementarity of demand markets. The fashion demand market still has a great presence in the textile industry. The percentage of firms dedicated exclusively or additionally to fashion demand markets is 57.09%; 45.84% of textile firms are also devoted exclusively or additionally to technical products (automobile, medical garments, etc.), also resulting in a significant influence.

On the other hand, the adoption of vertically integrated organizations means a strong dependence on internal economies of scale instead of external economies. Therefore, there is little need to be proximal to other firms in the same industry. This process has spatial consequences. The main consequence is that the TGD has become a sub-optimal space for the textile industry. In contrast, the MAB/RMB and the regional periphery are considered optimal spaces, where urbanization economies have emerged because of the proximity to transport infrastructures. However, it is important to deepen investigation of the industry structure through firm size for accurate future analysis of the stage of the textile industry in its lifecycle.

In the case of the clothing wholesaling sector, the scarcity of disaggregated data does not allow a precise analysis. However, a plausible hypothesis is that it is experiencing a decline phase, which implies its progressive disappearance within the fashion value chain. This hypothesis comes from the in-depth interviews. Interviewees highlight as a reason for the clothing wholesaling sector's downturn the ongoing competition of fashion MNRs' retailers. Their control of the whole fashion value chain means that intermediaries such as wholesalers are increasingly unnecessary. On the other hand, despite the development of strategies based on the mix of productive systems, rapid stock turnover, and ICT use, the almost disappearance of the sector is inevitable. The development of aggressive marketing strategies by MNRs is causing the decline of fashion SME retailers and, consequently, the demand market for fashion wholesalers.

Therefore, the decline of the TGD's specialization in clothing wholesaling follows the general evolution of the sector.

The answer to the hypothesis means that the objective has been achieved.

8.1.5 Conclusions to fourth objective

The fourth objective was related to analysis of the causes and consequences of the NICs' configuration in the TGD. There were three hypotheses. The first hypothesis was that the TGD's NIC was a mix between a spontaneous cluster, a significant new economy precinct, and a cultural quarter. The hypothesis is validated, with some considerations. The TGD also comprises the characteristics of incipient new industry districts.

Concerning the spontaneous cluster, market forces have led the economic transformation of the TGD. The decline of headquarters and the progressive disappearance of clothing wholesaling firms meant empty business spaces, which are being occupied by knowledge- and creativity-based firms. Local government has had an implicit role because of the development plans to hinder wholesaling activity and the support of Zone 11, a creativity-based plan to 'revitalize' the TGD.

In the case of the significant new economy precinct and cultural quarter, the TGD's features coincide almost with all their theoretical characteristics. Despite the TGD being physically smaller (0.3 km²) than the theoretically size (0.5-1 km²), there are cutting-edge firms in the videogame and the cultural and creative industries, in the co-workings sector, and in the lodging sector. Regarding environmental and cultural amenities, interviewees note the upgrading of the Passeig de Sant Joan and the presence of upmarket and trendy bars as revitalizing aspects of the TGD. Related to cultural markers, the presence of art galleries acts as an important input in the change of perception of the district from an insecure to a fashion urban area. The above-mentioned features have driven the reterritorialization of the TGD. However, results from spatial cluster analysis highlight that the current economic dynamics of the district are embedded within the economic logic of the Eixample. Nevertheless, the

dissertation has confirmed that the historical, urban, and economic features of the TGD lead us to consider it as a genuine urban economic space.

Finally, the TGD is also an incipient new industry district. The development of the present dissertation has coincided with a sudden economic change in the district. At the beginning of 2014, there was still an important presence of clothing wholesaling firms in Trafalgar Street and Bruc Street. Today, they have disappeared, and art galleries or beverage firms have bloomed.

The second hypothesis was that the main factors in the configuration of the NIC are related to hard factors related to the availability of empty business spaces and transport accessibility. The hypothesis is validated. Despite soft factors also having an important role in the transformation of the TGD, hard factors are fundamental to understand the economic transition.

Hard factors relate to the availability of large businesses spaces and the transport accessibility within the TGD. On the other hand, in-depth interviews note the importance of soft factors, but to a lower degree. Some inputs included the presence of public spaces, and the existence and proximity of trendy bars and restaurants.

There are also factors that emerge at the Barcelona scale and directly affect the current TGD, such as human capital, institutional thickness, and knowledge pools. Their importance helps to contextualize the TGD's transformation. Concerning human capital, results from in-depth interviews and the presence of highly skilled workers within CWs denote the importance of Barcelona as an attractor of national and international qualified labor pools. In-depth interviews with CWs reveal that knowledge pools at the city level are vital for the building of its 'buzz' and global and local pipelines. This advantage helps to create a bounded knowledge-based micro-network from which co-workers benefit. Therefore, the TGD is not important in the location of knowledge pools. The existence of them at the urban level materialized directly within CWs. In relation to institutional thickness, Barcelona's transformation into a knowledge-based economy has entailed the attraction of innovation-related firms and highly skilled workers, creating an innovative milieu.

The third hypothesis was that the main consequence of the configuration of the TGD as an NIC is the diversification of its economic structure and a change of perception of the district's collective imaginary from an unpleasant garment-based space to a more attractive one. The hypothesis is validated with some accuracy. Results from firms' self-made census and in-depth interviews confirm the hypothesis. However, the most important consequences are the mix of production regimes and the emergence of different geographical patterns in relation to knowledge and information flows.

The TGD's economic transformation has meant its transition from a specialized to a diversified economic space. The concentration of different activities has implied diverse production regimes. Pre-Fordism firms are represented by neo-artisanal production firms. Fordist-based firms may be represented by bakeries, which depend strongly on a production process based on a division of labor and the mechanization of specified tasks. Post-Fordism and new economy regimes frame those office-based activities focused on knowledge and creativity. This results lean in the same direction as previous studies (T. A. Hutton, 2008). The location of art galleries, the upgrading of public spaces (Passeig de Sant Joan) and micro-urban spaces (Passatge de les Manufactures), and the bloom of trendy bars and restaurants is changing the area.

The emergence of CWs causes the creation of bounded knowledge-based micro-networks. The interrelationships between co-workers (freelancers, remote workers, or SME firms) and the role of the staff from the CW configure new knowledge and information flows. On the other hand, seminars and workshops arranged by the CW also afford the introduction of new knowledge. If remote workers deliver workshops, the CW gains new knowledge to the network through global pipelines. In the case that they are external actors, new knowledge will enter through global and local pipelines. The generation and reproduction of knowledge and information within the CWs cause a 'buzz', or the so-called community.

8.2 Challenges and contributions

The present dissertation aimed to elucidate and analyze the main mechanisms that caused the configuration of the TGD as a garment cluster and NIC, and the factors that

entailed its transition from 1900 until 2018. Study of the TGD has posed a set of challenges and contributions.

In relation to challenges, firstly, analysis of the TGD is not circumscribed only to an intra-urban level, but its economic dynamics result from multi-scalar processes. Secondly, from a methodological viewpoint, the search of quantitative data on an intra-urban scale entailed intensive exploration of different public and private organizations in Barcelona's metropolitan area. Finally, the economic transition of the TGD has been dramatic in the last five years, coinciding with the development of the present thesis. Therefore, the dissertation has attempted to illustrate those fast changes.

The resolution of these challenges means that the dissertation contributes with insights from a theoretical, methodological, and empirical viewpoint. From a theoretical perspective, the employment of several concepts and theories (agglomeration economies, ILC, CLC, lock-in, and cluster) has shed light on how they can be interrelated in order to deepen analysis of the configuration and evolution of economic spaces. On the other hand, analysis of the TGD as a garment cluster contributes to fill the gap about this topic in the economic geography literature. The analysis of current urban garment clusters provides important insights about productive transitions in mature urban economic spaces within a hyper-connected globalized world.

In relation to the methodology, the sources of information employed in the dissertation have assisted in gathering precise intra-urban data. On the one hand, the transcription, filtering, and geolocalization (through GIS) of data have helped build for first time a time series of the spatial patterns of headquarters, garment wholesaling, and CMT firms in Barcelona. On the other hand, the processing through spatial statistics (spatial cluster analysis) and analysis has corroborated statistically that the TGD became a garment cluster and then a clothing wholesaling center. The present dissertation is also based strongly on qualitative methods. The employment of non-participant observation and, particularly, in-depth and informal interviews has not only highlighted new information, but has also complemented and confirmed results obtained by quantitative methods. Therefore, the thesis contributes to stress the importance of a mixed-method methodology in economic geography.

Concerning the case under study, the analysis of the TGD contributes to enrich Barcelona's and Catalonia's industrial literature, and particularly the textile industry literature. It is worth noting that the textile industry literature related to Barcelona is very oriented to the industrial side. Thus, studies concerning the clerical and logistical side of the industry, or even garment wholesaling and clothing manufacturing, are almost non-existent. Therefore, the present dissertation contributes to analyze the urban spatial behavior of those economic activities and the economic relationships between them from the beginning of the twentieth century to the present. On the other hand, the study of the TGD continues the research of Thomas Hutton about economic transformations in inner urban areas (Hutton, 2004, 2006, 2008, 2009). The emergence of CWs complements the analysis of economic transformations in intra-urban areas and brings new highlights about the spatial and economic behavior of knowledge- and creativity-based activities.

8.3 Future research lines

The present dissertation has opened new research lines. Firstly, analysis of the TGD as a garment cluster can be extended to the depth of the intra-industrial relations between headquarters, garment wholesaling, and CMT firms. Results have been obtained by spatial cluster analysis and in-depth interviews. However, it is necessary to obtain quantitative data about economic interrelationships between different economic activities within the textile and fashion value chains. This way, the present results will be reinforced. Secondly, analysis of other supporting industries within the textile and fashion value chain could be conducted (e.g., textile machinery, notions stores, textile-oriented chemistry). Results will show their spatial behavior and what the relationship with the TGD's garment cluster is, and the role of intra-urban agglomeration economies in its spatial concentration.

The analysis of the TGD as an NIC follows the studies related to 22@Barcelona (Casellas & Pallares-Barbera, 2009; Dot Jutgla, 2015) and, particularly, the intra-urban economic transitions related to knowledge and creativity in Barcelona. However, 22@Barcelona differs notably from the TGD because its transformation is not induced

by a local cluster policy. Therefore, analysis of the TGD could be the starting point for the study of other intra-urban spaces in Barcelona that are experiencing spontaneous economic transitions, such as Silicon Gràcia in the Gràcia district in Barcelona. Silicon Gràcia is a project built by CWs that aims to attract highly skilled workers and firms related to knowledge, creativity, and culture, creating an innovative milieu. Despite the attractiveness of the case study, Silicon Gràcia has not yet received enough attention.

Finally, the analysis of CWs and their implications for the urban economy is undoubtedly a need in economic geography. Several questions arise from the present dissertation, such as the possible exchange of knowledge between CWs in Barcelona, the repercussions in labor organization changes, or the consequences for changes in urban land uses. CWs should be one of the central topics in economic geography in the next decade.

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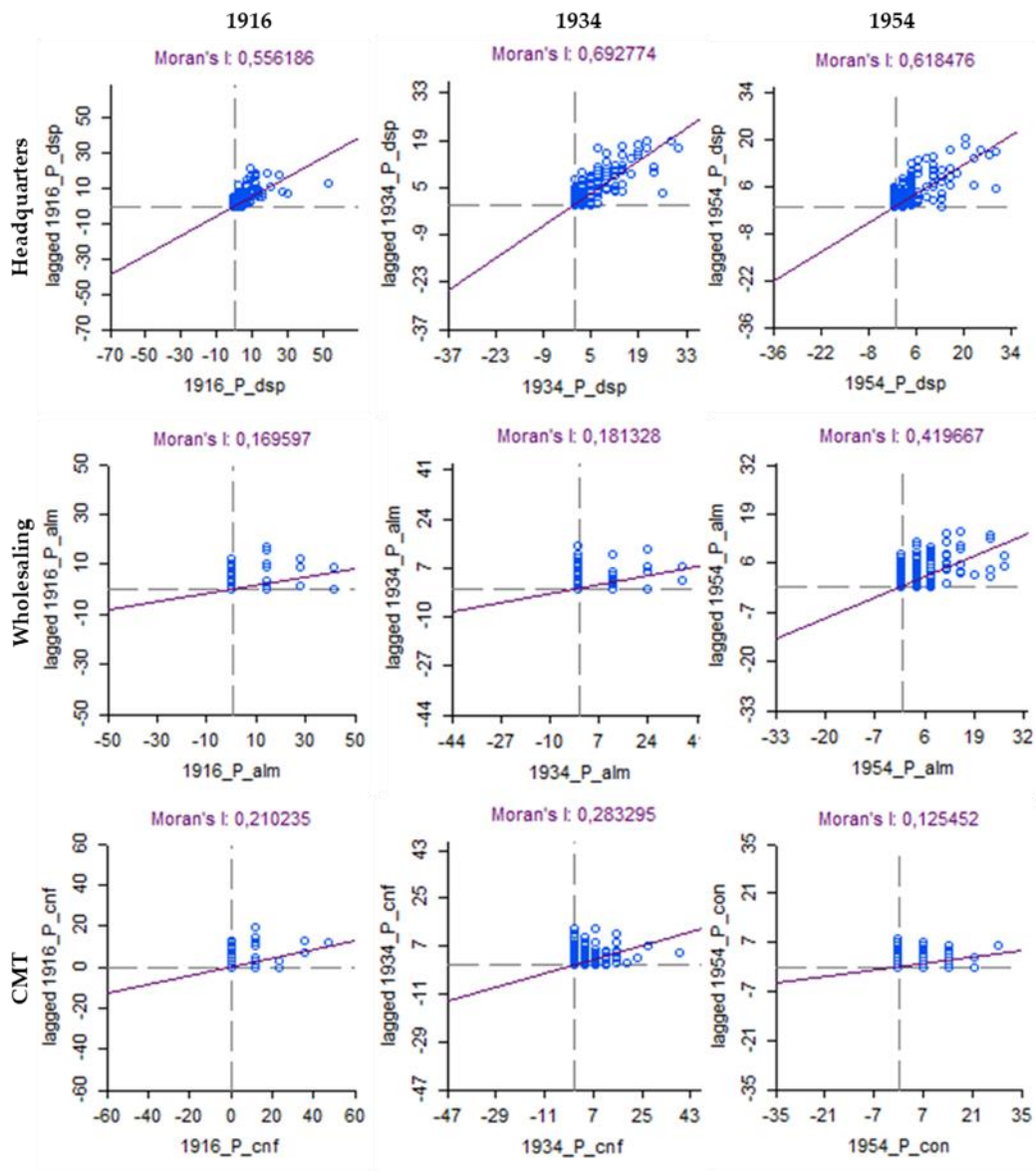
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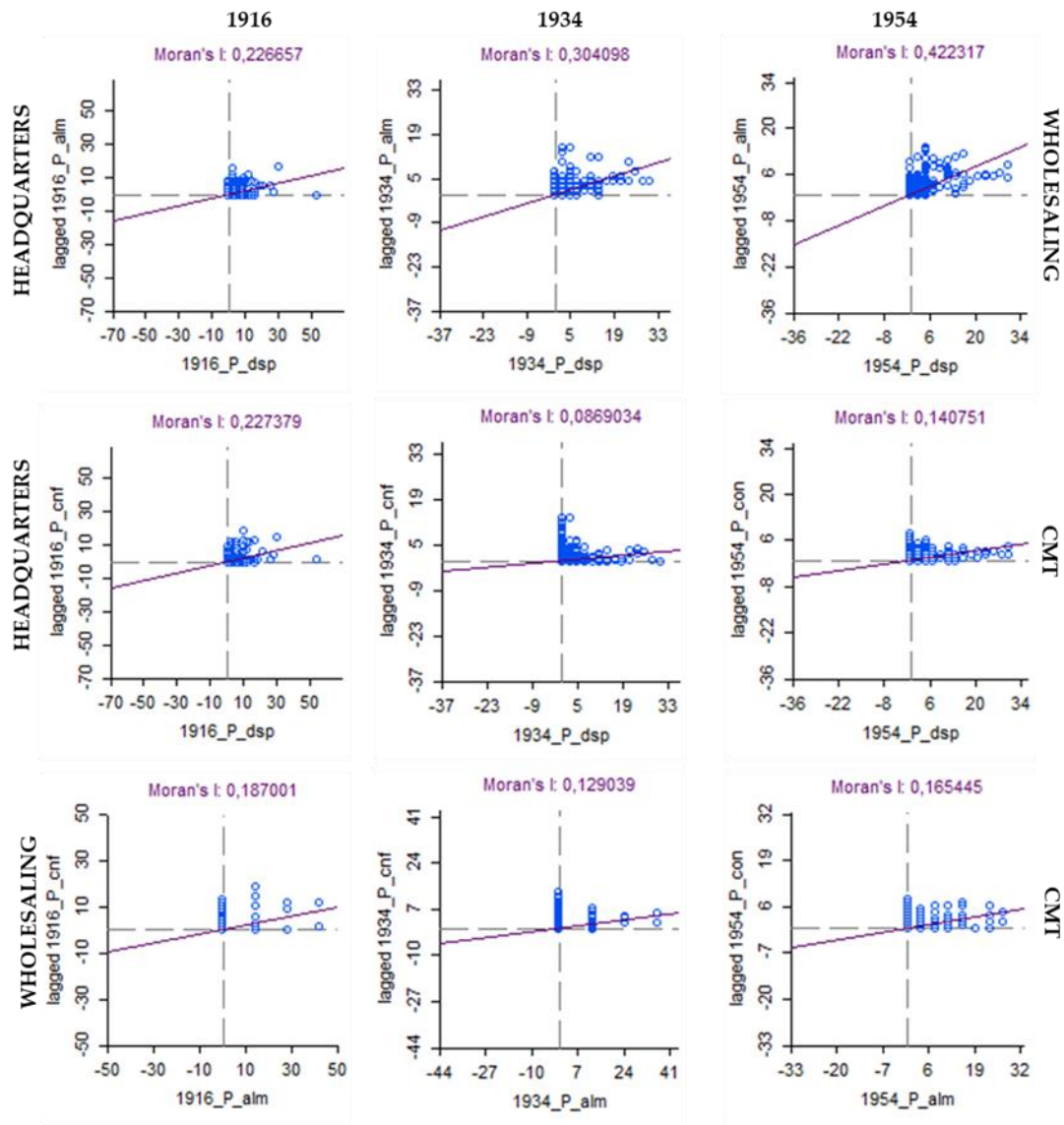
APPENDIXES

Appendix 1. Univariate Global Moran's I of garment-related firms in 1916, 1934 and 1954



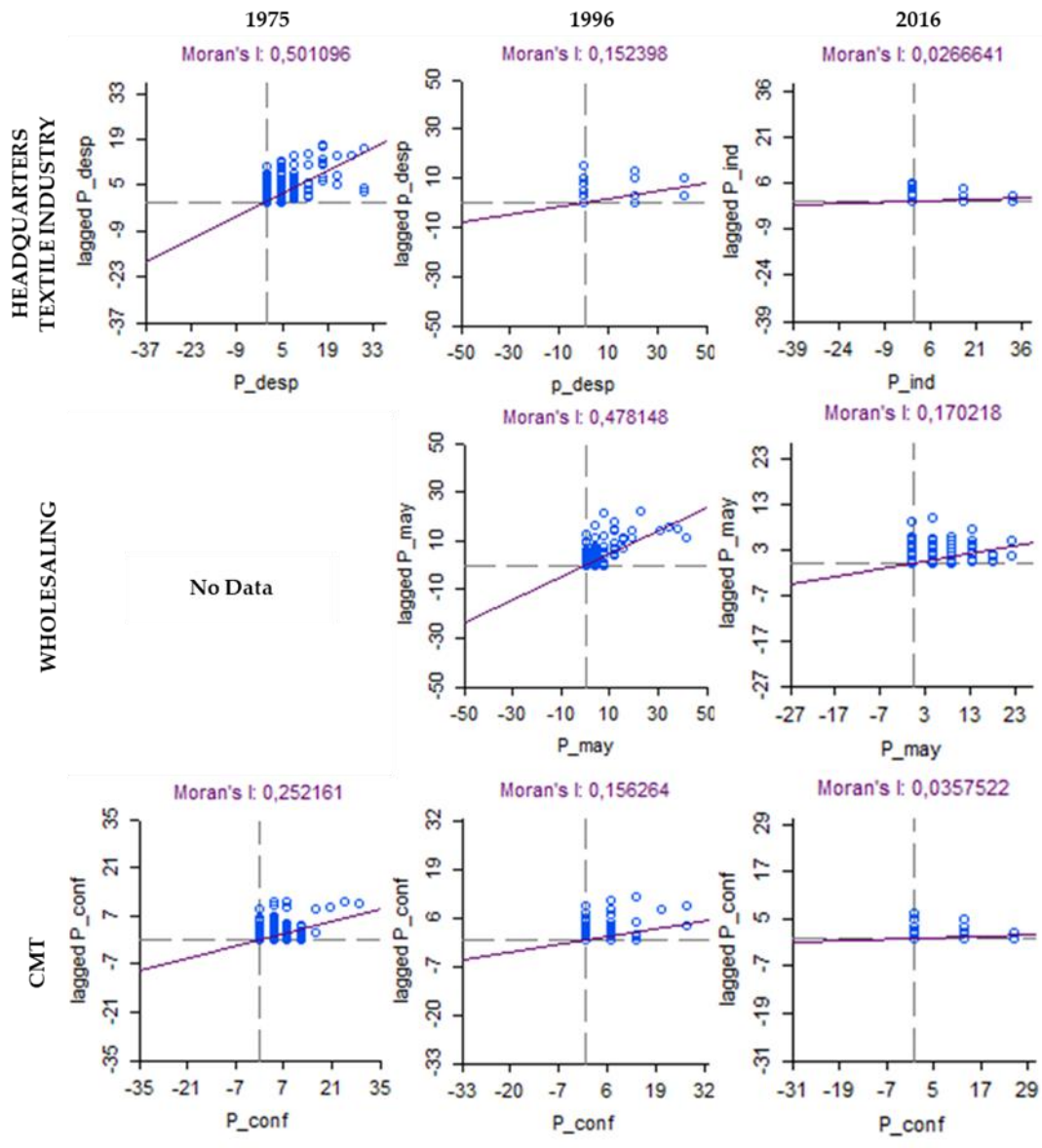
Source: own elaboration

Appendix 2. Bivariate Global Moran's I of garment-related firms in 1916, 1934 and 1954



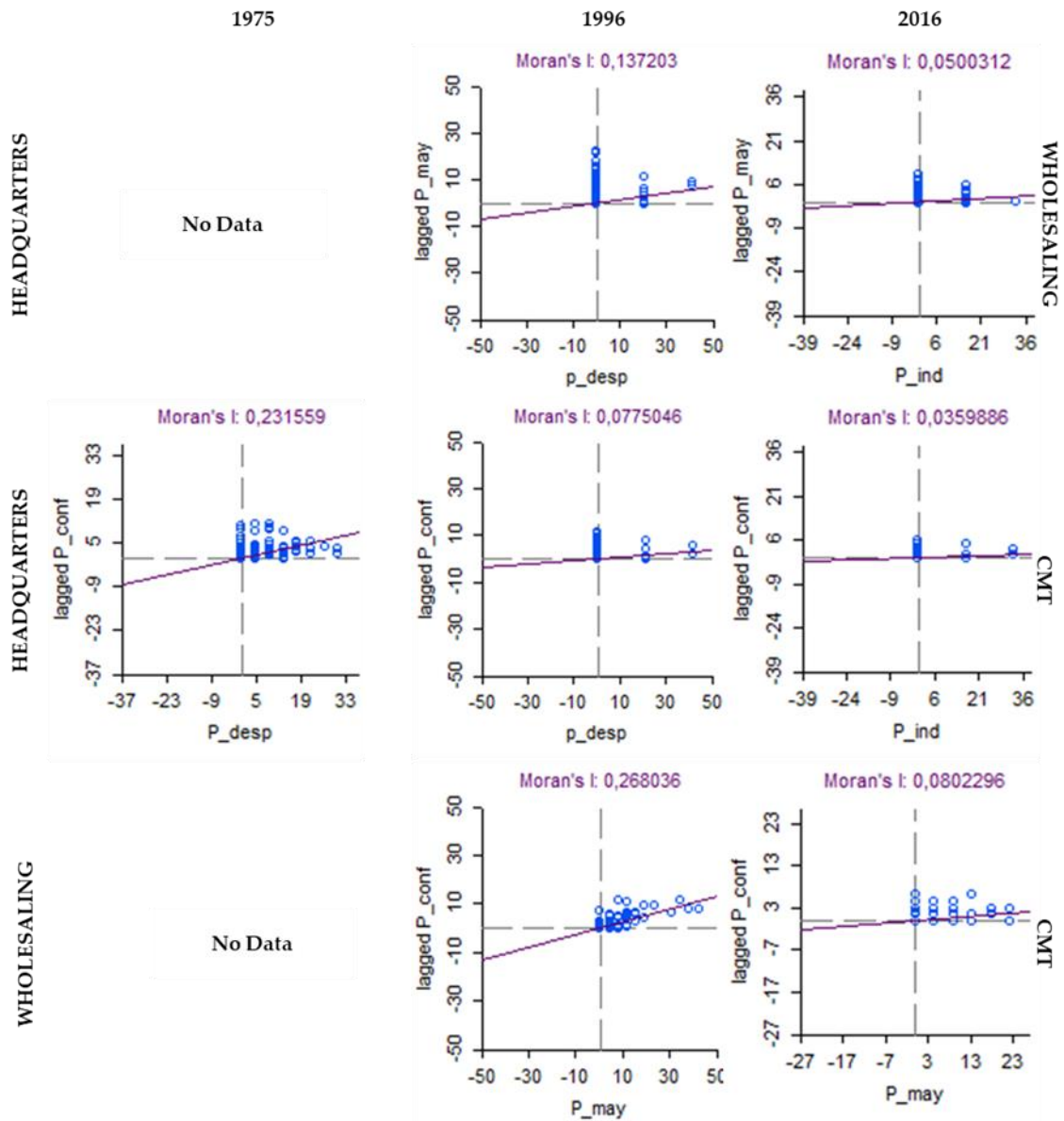
Source: own elaboration

Appendix 3. Univariate Global Moran's I of garment-related firms in 1975, 1996 and 2016 and 2016



Source: own elaboration

Appendix 4. Bivariate Global Moran's I of garment-related firms in 1975, 1996 and 2016



Source: own elaboration

Appendix 5. In-depth interviews

