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Impact of the financial crisis on the cultural and creative industries: the case of Aragon (2008-2013)

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Abstract
Introduction: This article describes the effects of the past financial crisis on the cultural and creative industries (CCI) in Aragon. It seeks to measure the social and economic impacts suffered by the CCIs and to provide comparable data on these industries and their development. The study covers from 2008, when the crisis broke out, to 2013, when the crisis slowed down. **Methods:** The study is based on the analysis of four variables (turnover, value added, employment and number of companies) in seven subsectors of the CCI (Architecture; Performing Arts, Visual arts; Film and video; Libraries, Archives and Museums; Books and newspapers; and Advertising), based on official data obtained for the purposes of this article. **Results and conclusions:** The CCIs have had a limited impact in the Community of Aragon, where the Books and newspapers subsector dominates the market. In general terms, all subsectors have suffered a significant decline in the aforementioned indicators within the selected period of time.

Keywords
Cultural and creative industries; Aragon; services sector; employment; financial crisis

Contents

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1. Introduction

The European Union considers the cultural and creative industries (CCI) as one of the key sectors in the Horizon 2020, the framework programme for Research and Innovation (European Commission 2011), for the "industrial rebirth promoted by the new European Commission (EC) for post-financial crisis growth" (Directorate General for Cultural Industries, Policies and Books, 2015: 1).

The development of these industries, as well as the existence of European programmes that promote them, demands the measurement of indicators that enable the detailed description of the situation of departure and to set goals both globally and in the various subsectors that make up this sector.

However, official statistics from Europe and Spain show that the latter lacks homogeneous criteria for the evaluation of the current state and potential development of these industries. In fact, defining accurately the scope of study is a recurring problem in works of this kind. This is an issue that the European Commission tries to solve in its Green Paper titled *Unlocking the potential of cultural and creative industries* (2010), which defines them as "those industries which use culture as an input and have a cultural dimension, although their outputs are mainly functional. They include architecture and design, which integrate creative elements into their wider processes, as well as subsectors such as graphic design, fashion design or advertising".

Therefore, works like this help the Spanish creative and cultural industries to develop strategic information systems that allow them, in a comprehensive manner, to contribute to the improvement of the technical, innovation and productive capacities of the Autonomous Communities. In this way, it would be possible, with greater accuracy and with more solid bases, to promote a complementary approach based on a territorial point of view and a national panoramic view, establishing a better connection with the goals of the Horizon 2020 (Framework Programme COM, 2011). "Regional and local production systems have to face these challenges based on a new approach that allows their business sector, particularly SMEs, to develop a high growth potential based on its opening to the global markets and especially to specific demands, many of them of emerging from niche markets, with a high component of innovation that facilitates their insertion in the global production chains and networks" (Ministry of Economy and Competitiveness, 2013: 36).

Thus, this research, which is part of a wider project titled "The transformation of the cultural and creative industries in Spain: digital change, competitiveness, employment and contribution to social welfare in the Horizon 2020 framework programme", carried out by the Localcom research group, seeks to improve the understanding and analysis of this phenomenon, from the perspective of the local space (also known as "regional" in international literature) and to clearly measure the impacts and possibilities of the innovations associated with the transition to digital environments on the sector.

2. Definition of cultural and creative industries

Along this line, the most recent lines of work advocate for the inclusion of the traditional cultural industries (performing arts, visual arts, heritage, cinema, music, media) and other activities such as design, architecture, and advertising, "giving rise to a broader definition of culture, which includes the cultural and creative industries, and thus reflect cultural diversity" (Maroto and Cabrerizo, 2013: 14). This perspective can be found in other recent international references made from the francophone perspective (Bouquillion, 2014), the Anglophone perspective (Lee, 2014) and from an integrated international perspective (Portifiro, Carrilho and Mónico, 2016).

In fact, this is a debate in the political-administrative, academic, social and media spheres. Thus, some research works, like the one carried out by Trenta and Pestano (2009), have addressed phenomena associated with it, like the way some of the new cultural industries are treated, as in the case of video games, in the Spanish press.

The research project of which this article is part aims to develop an innovative and easily exportable model for the analysis of the CCI in the Spanish autonomous communities. This index, which is still in development, should provide indicators that are in accordance with European and, by extension, international standards.

This objective, and the reduced geographical scope of this research, are in line with the objectives of the 2013-2020 Spanish strategy for science, technology and innovation, which indicates that "the territorial reality is a crucial element that determines the promotion of economic and social development, encourages or inhibits the competitiveness of small and medium-sized businesses and conditions the ability to respond to the challenges of globalisation. Regional and local production systems must face these challenges with a new approach that allows the business sector and, particularly, SMEs to develop a high growth potential based on its opening to global markets and specialised demands, many of them coming from emerging niche markets with a high component of innovation that facilitates their insertion in the global production chains and networks" (Ministry of Economy and Competitiveness, 2013: 36).

On the other hand, and as a consequence of the importance granted to them by political and economic entities, the CCI are finding in recent years a place in the academia, with research works that try to deepen the knowledge about the role and implications of these industries from different perspectives (Hartley, 2005; Garnham, 2005; Hesmondhalgh and Pratt, 2005; Potts, Cunningham, Hartley, and Ormerod, 2008; Bustamante, 2011; Round Santos, 2011; Zallo, 2011; Flew, 2012).

It should be noted that a large number of works make this approximation from very partial or sectoral views that offer a very rich and detailed vision with an undeniable interest, but lack the perspective of the CCI as an independent economic sector. This is the case, for example, of research works like those developed by De la Puente (2015), García Leiva (2011) and Arriaza Ibarra and Berumen (2016). Other works like those developed by Reig, Mancinas-Chávez and Nogales-Bocio (2014) and Coronel-Salas *et al.* (2012) examine the sector from classical approaches to the field of communication structure.

It is also necessary to highlight interesting views on the effects of the financial crisis on the cultural industries. For example, Mateo Pérez (2015) indicates that the maintenance of these industries has been based on the growth of the economy and the existence of surplus of income among consumers of CCI. Therefore, “in times of financial crisis, in Spain, the consumption of these products is reduced due to the loss of employment and reduced wages for workers and, also, due to the increase of value added taxes to 21% in almost all cultural products” (Mateo Pérez, 2015: 829).

This research article offers a different view given that it only defines the scope of the crisis in the CCI of the autonomous community of Aragon and offers, therefore, a partial view in terms of territorial approach. However, it provides an overall view with regards to the cultural and creative industries, shows the different weights of their subsectors and their relative importance of CCI in relation to the economy of the autonomous community. In addition, it offers a view that allows its comparison to other geographic areas at the European level.

All this occurred in a context of the emergence of a strong financial crisis, like the one that broke out between 2007 and 2008 worldwide. For this reason, the research extends over 6 complete years (on which comparable data were available at the time the article was completed), which allows us to observe the impact of this crisis on the cultural and creative sector, and to follow its evolution throughout this time.

This work adopts an essentially descriptive approach and has the following basic objectives:

O1: Measure the economic and social impacts of the cultural and creative industries (CCI) in the Autonomous Community of Aragon.

O2: Provide comparable information at a level of disaggregation. i.e. data on the four-digit subsectors/categories included in the National Classification of Economic Activities (CNAE according to its initials in Spanish) of the Spanish National Statistics Institute (INE) about the CCI in Aragon.

O3: Assess the impact of the financial crisis in the CCI in Aragon.

Table 1. Economic activities that make up each subcategory of the CCI

Libraries, archives and museums	• Museum activities • Management of historical sites and buildings • Activities of libraries • Activities of archives
Press and books	• Specialised retail trade of books • Specialised retail trade of newspapers and stationery • Book publishing • Newspaper publishing • Magazine publishing • News agency activities • Translation and interpretation activities
Visual arts	• Specialised design activities • Photography activities • Artistic and literary creation
Performing arts	• Performing arts • Ancillary activities of the performing arts • Management of auditoriums
Audiovisual activities	• Specialised retail trade of music and video recordings • Edition of video games • Post-production of film, video and TV programmes • Film exhibition activities • Production of film and video • Production of TV programmes • Film and video distribution • Distribution of TV programmes • Sound recording and music editing activities • Broadcasting activities • TV programming and broadcast activities • Rental of video tapes and disks
Architecture	• Technical architecture services
Advertising	• Advertising agencies

Source: INE, National Classification of Economic Activities (CNAE-2009).

This study relies on its own original database, obtained within the framework research project of which it is part: Localcom CCI Statistical Model (MELCCI according to its initials in Spanish). These basic statistical research data were obtained through a data provision agreement reached between the National Statistics Institute and the Autonomous University of Barcelona. This database collects data on four basic variables of reference of the international models in the sector, disaggregated by autonomous communities: turnover, gross value added, employment and number of companies (UNESCO, 2012). This model, which has already been contrasted in sectorial research, includes seven subcategories of CCI (Architecture; Performing Arts; Visual arts; Audiovisual; Libraries, archives and museums; Books and newspapers; and Advertising) and six years of reference (2008-2013). As table 1 shows, we worked with 31 types of economic activities included in the National Classification of Economic Activities of 2009 (CNAE-2009), which are classified in seven CCI subcategories, following the proposal of ESSnet-Culture (Bina, Chantepie, Deroin, Frank, Kommel, Kotýnek and Robin, 2012).

1.2. Economic context

With regards to studies on the evolution of the economy between 2008 and 2013, and specifically those published on the Aragonese economy, none of them take into account the cultural industries as an important part of the economic sectors. The official reports and those developed by various bodies, such as the Social and Economic Council of Aragon (CESA) or the Chamber of Commerce of Zaragoza through the Basilio Paraíso Foundation, dealt with the three traditional sectors of the economy, agricultural, industrial and services, and examine some subsectors they consider to be significant and relevant.

Thus, the agrarian sector differentiates between agriculture and stockbreeding. Agriculture is divided into the different plants that are cultivated, such as cereals and vineyards, for example. Stockbreeding, for its part, is divided into the different animals that are farmed. On the industrial field, the energy and construction sectors dominate the main analyses, although several of these studies occasionally address the automotive industry and new technologies. In the services category, in most cases the focus is on tourism, transport and trade.

In general terms, 2008 had two very distinct periods for the Aragonese economy. The first half of the year witnessed a positive development, given that the Expo 2008 managed to compensate the general economic slowdown. Even the year closed with a 1.4% increase in the GDP (the growth in 2007 was 4.1%) in contrast to the 0.8% increase of the GDP of the euro area.

According to the Active Population Survey of the Spanish National Statistics Institute, in 2008 the active population increased 3% and the number of employed people also grew. Employment increased in the services sector (2.1%), but there was a reduction in the industrial (-1.1%), agriculture (-5.1%) and construction (-10.9%) sectors. As a consequence, the overall unemployment rate increased and the average annual rate reached 7.29%.

It was in 2009 when the crisis manifested itself in all of its intensity in the Aragonese economy. Regional GDP decreased by 4.5%, nine tenths above the national Spanish GDP and four tenths above the euro-zone GDP. The greater declines occurred in the first part of the year and the fall was gradually moderated. In 2009 all sectors evolved negatively in all indicators.

In terms of employment, the 6.1% of the jobs that existed in 2008 was destroyed and the unemployment ended with an average of 13.05%, more than five percentage points lower than the Spanish rate.

In 2008, the Aragonese population reached its highest rate in recent decades with 1,347,000. This figure, as shown in table 2, increased in the following year, but began to fall again in 2010 and by

2013 Aragon had lost 21,000 inhabitants, which is the population size of the fourth city of the autonomous community.

Table 2. Basic data of Aragon's economy in the 2008-2013 period

	2008	2009	2010	2011	2012	2013
Unemployment rate (%)	7.29	13.05	14.96	17.07	18.67	21.39
GDP per capita	26,536	25,124	25,330	25,318	24,812	24,732
Population (thousands)	1,347	1,349	1,346	1,347	1,345	1,326

Source: Statistics Institute of Aragon.

The reports of the Chamber of Commerce and the Social and Economic Council of Aragon (CESA) show particularly negative revenues and employment balances in the industry, given that the adjustment in the construction sector concentrated in 2008.

According to estimates of the Regional Accounting of the Spanish National Statistics Institute, Aragon's GDP fell by 4.4% in 2009, eight tenths above the whole national GDP. Reports of the National Statistics Institute indicate that that year Aragon was the least dynamic community in the whole of Spain since its production declines exceeded those of Valencia, the Canary Islands and Catalonia, which in all cases exceeded 4%.

In 2010 the Aragonese GDP shrink once again, but very mildly. The fall was 0.2%, which is similar to the national GDP for that year, with a global drop in GDP of 0.1%. The reports of the Chamber of Commerce of Zaragoza indicate that this shift had to do with the positive balance of the external sector.

With regards to the economic sector, the official data indicate that the construction sector continued having an encumbrance effect in 2010, while the industry began to recover (1.6% growth).

Regarding the labour market, unemployment continued to grow although more moderately and reached 14.96%, still five points above the average rate for the whole of Spain.

The year 2011 brought positive figures to the Aragonese economy, but not enough to talk about a situation of recovery. GDP grew by 0.8%, in line with the average for the whole of Spain, which was 0.7%, but still far from the 1.5% in the euro area. Construction was the main burden of the regional economy, according to the reports for this tax year published by the Social and Economic Council of Aragon (CESA) and the Chamber of Commerce of Zaragoza. In contrast, both reports show notable improvements in the industry sector (with manufacturing standing out as the most dynamic sector) and the service sector.

On the negative side, the labour market continued to be unable to generate new jobs and the unemployment rate exceeded 17%, while the national rate reached 21.6%.

2012 was a stranger year in the analysed series, given that there was a kind of second recession for the Aragonese economy after the very timid recovery that occurred in 2010 and 2011. This year, the regional GDP was also negative and stood at 1.2%, but again the figures coincide with the global line in Spain where the GDP fell by 1.4%. The euro zone also reached negative, although more moderated, figures, with 0.6%.

The negative figures affected all sectors, especially the industrial sector. In terms of the labour market, the unemployment rate kept on rising, reaching almost 19%, which once again was better than the national average, which was 25%.

The effect of the second recession was felt in Aragon in 2013, when the economy of the community suffered a new downturn that was reflected in a 1.2% drop in its GDP. The figure is similar to that of the whole of Spain.

The effect of the situation in terms of employment is that the unemployment rate increased once again and the annual average stood at 21.39%. Although the figure maintained a difference of 4% and 5% with respect to the national average, it is striking that the rate of unemployment for Aragon in 2013 was three times higher than that of 2008, when the crisis started.

2. Methods

This research is part of a wider project whose objective is to make the statistics about the Spanish CCI comparable with international standards. In this sense, a difficulty that influences this and subsequent works is the design of the source of reference: the Annual Services Survey carried out by the Spanish National Statistics Institute offers national data, but in certain categories of the National Classification of Economic Activities the break down across autonomous communities is not possible due to limitations of the sample.

On the other hand, the statistics made available by the Annual Services Survey for this research only include data about the two-digit categories of the National Classification of Economic Activities, and that is why there are some distortions in certain subcategories under analysis, such as architecture and advertising. The most appropriate way to tune the results and, particularly, to present a more detailed breakdown by subsectors would be to have four-digit data of the National Classification of Economic Activities, which has not been possible. Moreover, with regards to the subcategories Performing arts and Libraries, archives and museums, the data provided by the INE are not broken down by autonomous communities, as the sampling is not performed across communities, what adds a new factor of complication to any research of this nature.

Consequently, this first step involved adjusting the digits of the National Classification of Economic Activities and generating the missing data through a statistical reallocation of values. On the other hand, the absence of data in the variable Number of companies was overcome since data were taken from the Cultural Industries Statistics and Accounts of the Statistics Institute of Catalonia (IDESCAT-EMPCULT) for Catalonia, in all subcategories for the years 2008-2013 (there is not data in 2009 for the performing arts and Libraries, archives and museums), and from the Central

Directory of Companies of the Spanish National Statistics Institute (INE-DIRCE) for all autonomous communities, in all subcategories (years 2008-2015). However, these data were not available for the rest of the autonomous communities.

The strategy was to work first with the data on Catalonia, then to adjust the model, later to obtain the data about the other communities and, finally, to verify its suitability. Thus, each of the studied subcategories were adjusted to a linear regression model that allows us to describe the evolution of data on Catalonia (IDESCAT-EMPCULT) over the last few years. Then, we calculated the ratio between the values offered by the INE-DIRCE for Catalonia and the values estimated by the regression model for each of the years of study. This value is the one used subsequently to rescale or reassign the rest of the data of the INE-DIRCE in each an of the autonomous communities and, in the case of this work, specifically of Aragon.

The difficulty to obtain comparable data was determinant in the definition and start of the project. In order to overcome this situation in the variables employment and turnover we noted that we had the following initial information: data from the IDESCAT-EMPCULT for Catalonia and for the subcategories in the 2008-2013 period (except for the Performing arts and Libraries, archives and museums, for which there were no data in 2009); homogeneous data of the INE for all communities in almost all subcategories in the 2008-2013 period (except for the Performing arts and Libraries, archives and museums on which data is only available for Spain); data from the SGAE (revenue) for the subcategory of Performing arts in the 2008-2013 period for all the autonomous communities, coming from their yearbooks of the performing arts, musicals and audiovisual; data from the INE on staff expenses of Libraries for the even-numbered years (2008, 2010, 2012 and 2014) of the different autonomous communities; and finally, data from the Ministry of Education, Culture and Sport on the total number of personnel attached to museums for the even-numbered years (2008, 2010, 2012 and 2014) for all autonomous community.

In this way, we estimated the data for each community in relation to employees and turnover comparable to the INE with regards to the two subcategories on which there were no data available (Performing arts and Libraries, archives and museums). Thus, the values were obtained after distributing the total of the whole of Spain (data published by the INE) according to the weight corresponding to each of the autonomous communities depending on the revenue published by SGAE for the subcategory of Performing arts, and according to the data on staff expenses and staff assigned to Libraries, archives and museums published by the Ministry.

Finally, this same operation was performed to determine the number of companies.

The next step consisted in determining the operational data to calculate the variable gross value added. We had data from IDESCAT-EMPCULT for Catalonia and for almost all the subcategories in the 2008-2013 period (again, 2009 data were not available for the Performing arts and Libraries, archives and museums); data from the Culture Satellite Account in Spain (Ministry of Culture) which included the global gross value added of Spain for the 2008-2012 period, and for various subcategories (in this case Visual arts and Architecture were unified under the name of Plastic Arts).

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In this case, we started by determining the global gross value added of Spain for the categories Visual arts and Architecture in all the years under study based on the value of Plastic arts published by the Culture Satellite Account. Thus, the calculation of the weight of each subcategory was based on the available data on turnover.

3. Results: effects of the financial crisis

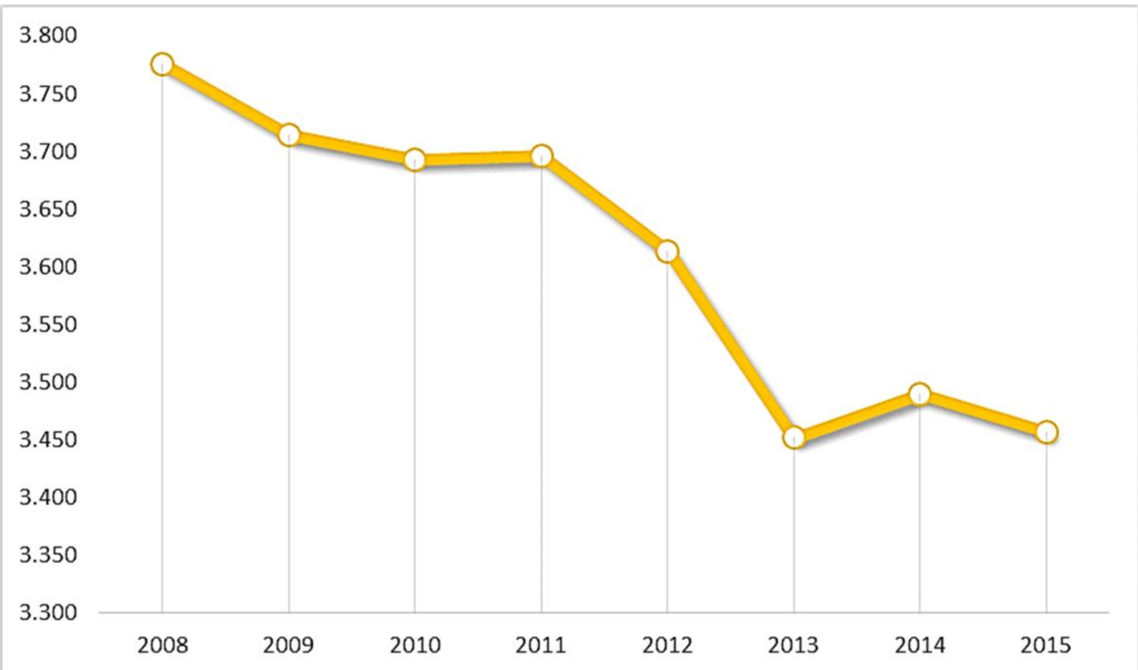
As mentioned, the last part of the study consisted of calculating the corresponding values for all years included in the period of study (2008-2013) in each of the subcategories, based on a linear regression model. This allowed us to obtain the main indicators of the CCI, comparable with those of other communities and in accordance with European standards, as well as to examine their evolution over the six years of study in order to determine the effects of the financial crisis in the CCI.

3.1. Number of companies

The indicator "number of companies" is the only one on from which there is data available up to 2015. In addition to the data from the 2008-2013 period, we offer data from 2014 and 2015 as additional information. Is for this reason that this indicator is presented first, in absolute numbers, as reflected in figure 1.

In the 2008-2015 period, Aragon lost 8.4% of the companies from its CCI; i.e., 319 companies disappeared. As Figure 8 shows, the most dramatic drop occurred between 2008 and 2013, with a higher incidence between 2011 and 2013. In 2014 there was a small recovery, but in 2015, the levels of 2013 reappeared. If we consider the 2008-2013 period, the loss of companies was 8.6%, a very similar percentage, with the disappearance of 324 companies.

Figure 1. Evolution of the number of companies in the CCIs of Aragon



Source: Localcom CCI statistical model (MELCCI).

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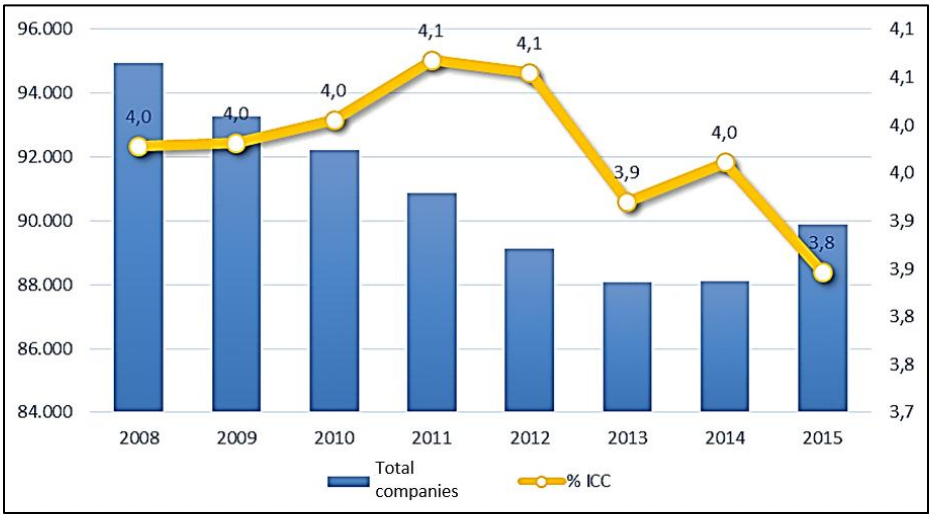
The relative weight of the CCI in Aragon's business sector has hardly varied in the period of study, since it went from representing 4% of all the businesses that existed in Aragon in 2008 to 3.8% in 2015. If we take the data from 2013, the rate is 3.9%. Variation over the years is not very significant, since it has ranged from 3.8% and 4.1%, which indicates that the behaviour of the CCI has been similar to that of the whole economic of the community. However, as noted in figure 2, it has experienced a somewhat particular linear evolution.

Graph 2. Evolution of the total number of companies and CCI companies in Aragon



Source: Localcom CCI statistical model (MELCCI) and DIRCE-INE.

If we examine these data in relation to the population, the number of companies in the CCI sector per ten thousand population has gone from 28.45 in 2008 to 26.24 in 2015. We must bear in mind, moreover, that in this period, the population of the community went from 1,327 million on 1 January 2008 to 1,317 million to 1 January 2015, so the drop in this indicator has been relatively attenuated.

As figure 3 shows, the sector that lost the largest number of businesses between 2008 and 2015 is Libraries, archives and museums (-43%), followed by Architecture (-25%), Audiovisual (-25%), and Books and newspapers (-20%). In contrast, the number of companies increased in some subsectors: 49% in the Performing arts experienced, 32% in Advertising and 6% in the Visual arts.

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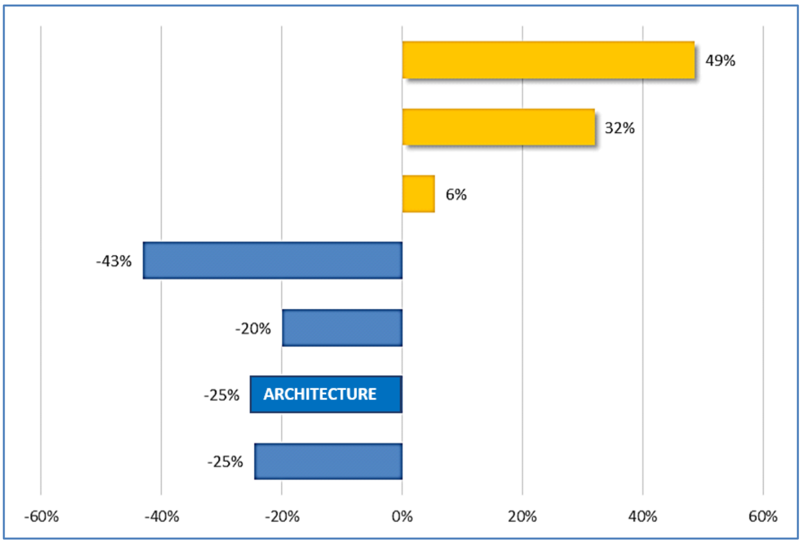
Figure 3. Evolution of the number of companies by subsectors of the CCI

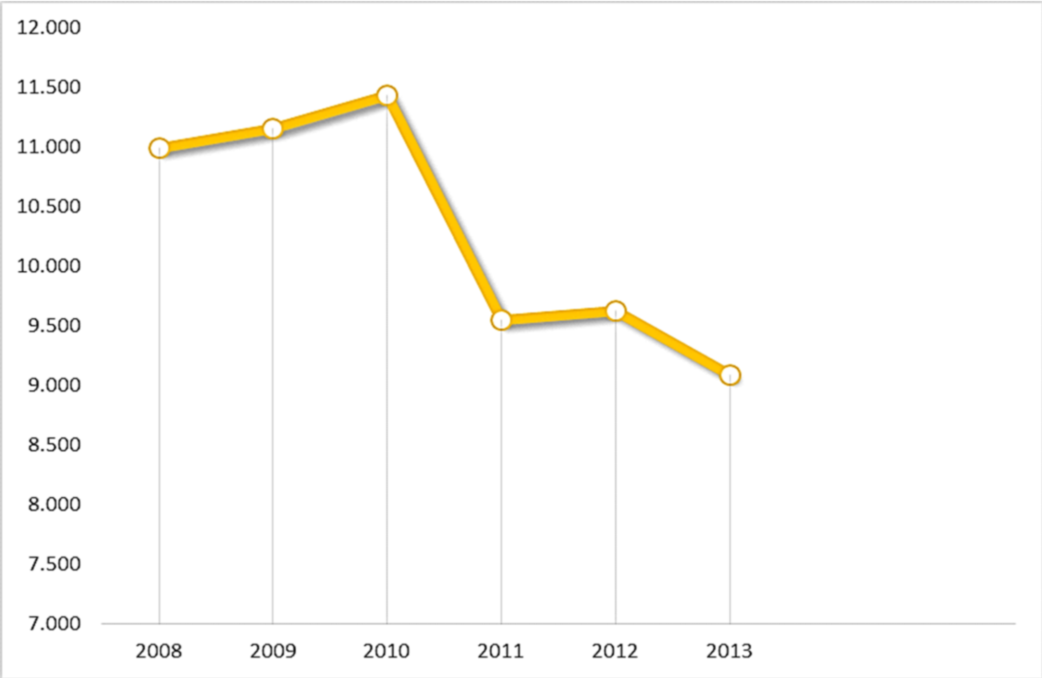


Source: Localcom CCI statistical model (MELCCI).

3.2. Employment

Employment in the CCI decreased 17.3% in the 2008-2013 period, while total employment in Aragón decreased 17.6%. Of the 110,400 jobs lost in the period of study, 1,906 belonged to the CCI. In this sense, the decline in employment in the CCI is almost the same to that in all sectors in the autonomous region. The biggest decline in employment in the CCI occurred between 2010 and 2011, when the number of people employed by the CCI went from 11,441 to 9.549, i.e. 1.892 employees less. In a single year the decline in employment reached 16.5%.

Figure 4. Evolution of the number of employees in the CCI



Source: Localcom CCI statistical model (MELCCI).

As Figure 5 shows, the workforce in the CCI represented 1.8% of all the people employed in Aragon throughout the 2008-2013 period. However, the share reached 2% in 2010 and touched ground in 2011 with 1.7%.

In any case, the comparison of these figures with those of those of the relative weight of the number of CCI companies with respect to the whole of businesses in Aragon (Figure 2) indicates that the CCI companies contributed proportionately fewer workers. In other words, while the CCI companies accounted for 3.8% of all the businesses in 2013, they represented only 1.8% of all workers. The CCI companies in Aragon usually have a low number of employees because they are mostly small enterprises.

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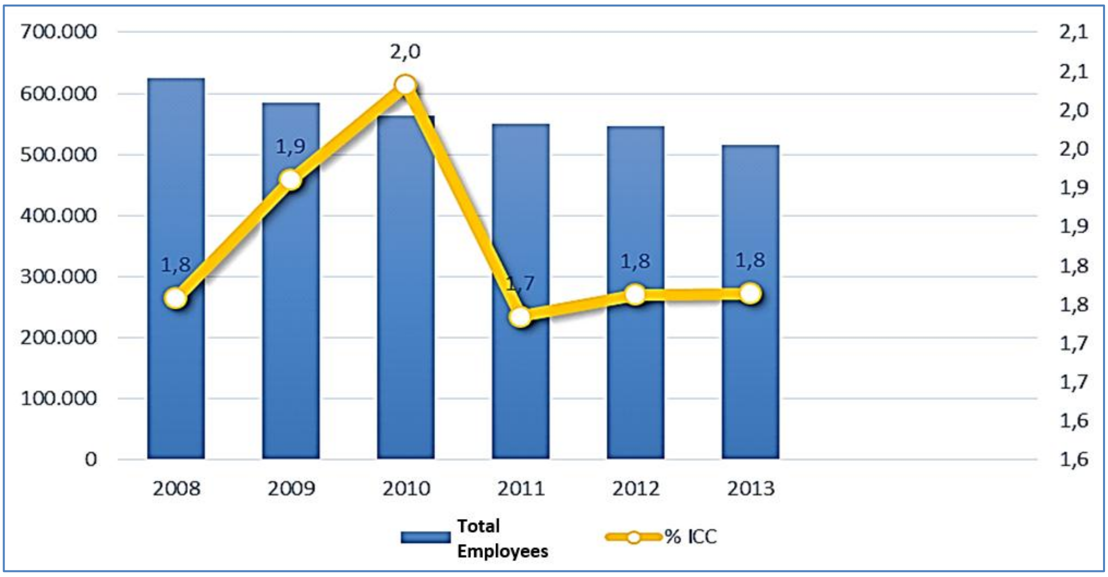
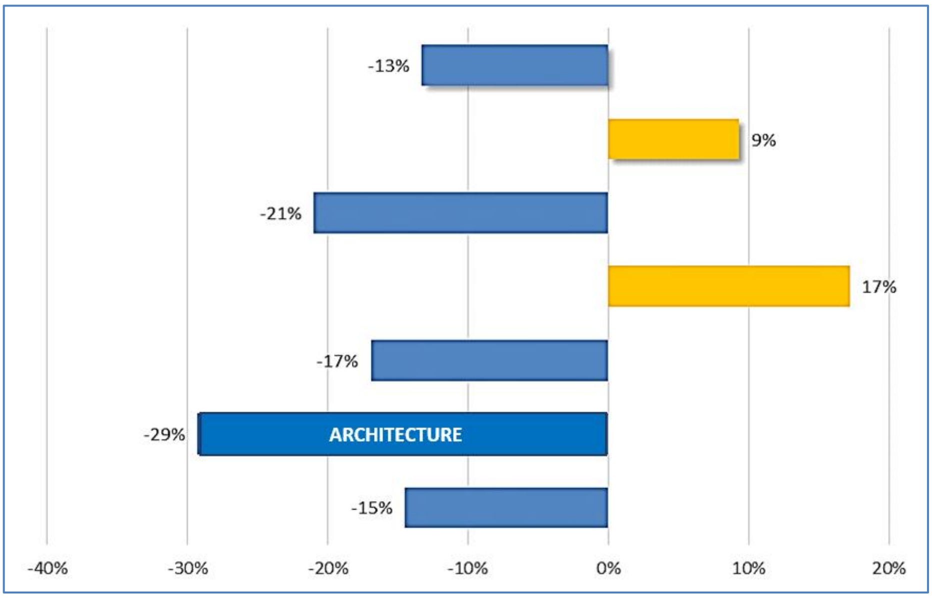
Figure 5. Evolution of employment in general and in the CCI



Source: Localcom CCI statistical model (MELCCI) and INE's Active Population Survey.

By subsectors, as Figure 6 shows, in the period of economic recession employment increased in Advertising (9%) and Libraries, archives and museums (17%), but also decreased significantly in all the other subsectors; mainly in Architecture (-29%) and Visual arts (-21%), but also in Books and newspapers (-17%), Audiovisual (-15%) and Performing Arts (-13%).

Figure 6. Evolution of employment in the CCI



Source: Localcom CCI statistical model (MELCCI).

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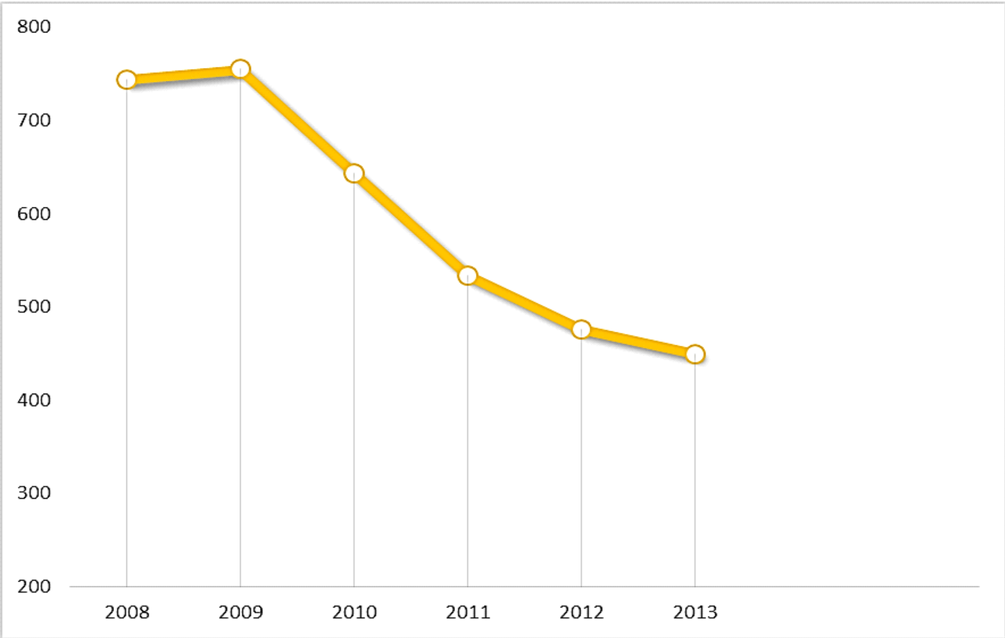
3.3. Turnover

With regards to the turnover of the Aragonese CCI in the 2008-2013 period, there was a 39.5% decline (Figure 7) generated continuously after a stable start between 2008 and 2009. The whole of the CCI in Aragon had a turnover of 744 million Euros in 2008 that descended to 450 million in 2013. The most prominent drop occurred between 2009 and 2010, with a decline in turnover of 112 million euros, which represented almost a 15% drop in a single year.

Figure 7. Evolution of turnover in the CCI



Source: Localcom CCI statistical model (MELCCI). Figures in million euros.

As Figure 8 shows, the analysis of subsectors indicates that the only sector that increased its turnover during the studied period is Libraries, archives and museums, with a 6.3% increase. This situation contrasts with the sharp decline experienced by all other sectors. Architecture suffered a decline of 65% in its turnover; the Audiovisual sector experienced a drop of 44.6%; the Visual arts lost 34.7% of its turnover. Other subsectors that also registered sharp declines in their turnover are Books and newspapers (-30.6%), Performing arts (-27.2%) and Advertising (-25%).

The unequal evolution of the subsectors made their weight to change significantly within the set of CCI in a six-year period. Thus, of every 100 euros operated by the CCI in Aragon 25 corresponded to Architecture in 2008, but this figure dropped to only 14.6 in 2013. On the contrary, the subsector Books and newspapers increased its relative weight, reaching almost 40% of the total turnover of the CCI. The sub-sector Libraries, archives and museums also stands out because in 2008 it only represented 2% of the CCI sector in Aragon, but in 2013 it came to represent almost 4%.

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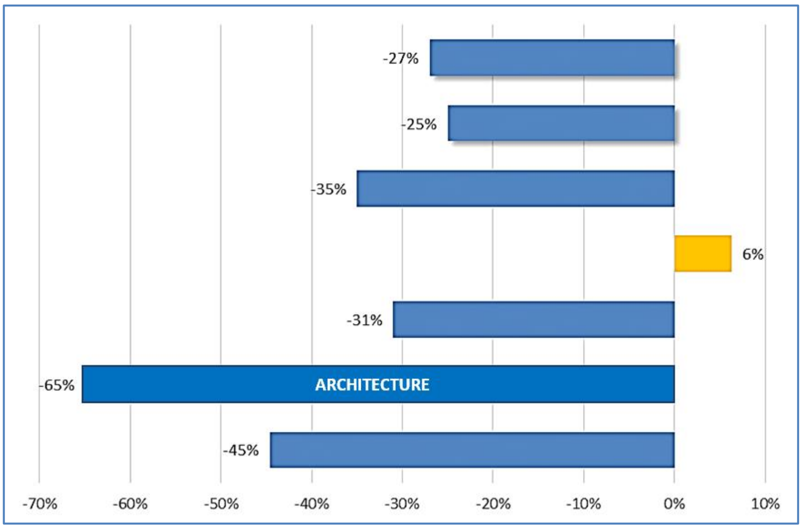
Figure 8. Evolution of turnover in the CCI

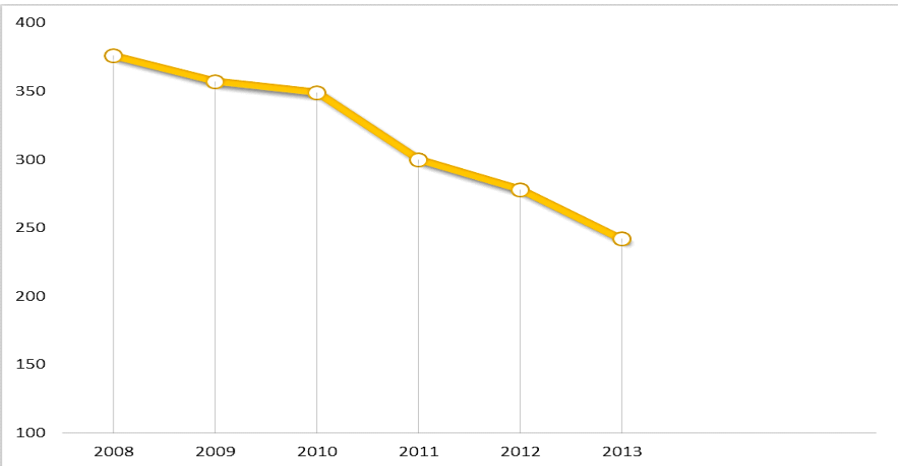


Source: Localcom CCI statistical model (MELCCI).

3.4. Gross value added

The assessment of the economic impact of the CCI has taken into account, in addition to the turnover, the gross value added, which is an economic measure of the income generated by all producers of an economic area, the CCI in our case. It represents the values that are added to the goods and services in the different stages of the production process. It constitutes a particularly useful information to compare, since it allows to measure the contribution of the CCI to the national wealth expressed in the gross domestic product (GDP), the macroeconomic dimension, which is the sum of the gross value added of all businesses in the country.

Figure 9. Evolution of the gross value added of the CCI



Source: Localcom CCI statistical model (MELCCI). In EUR million

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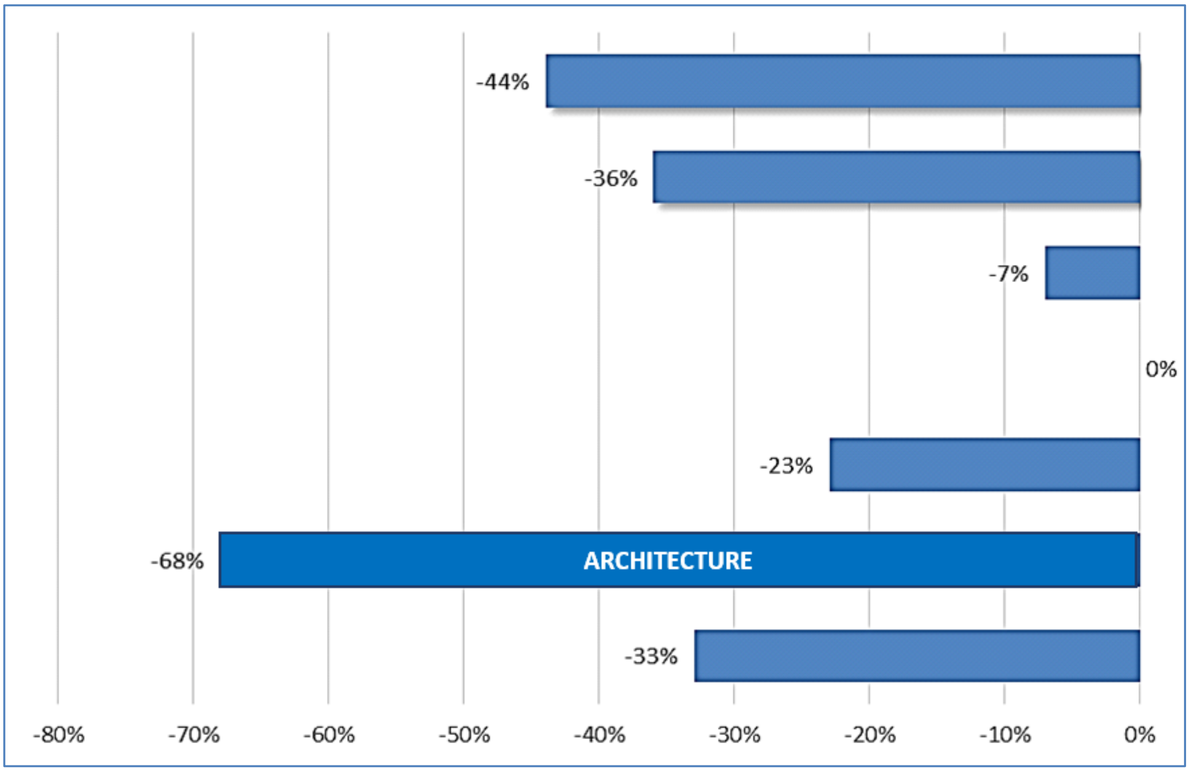
In terms of the gross value added generated by the CCI the Aragonese economy, it suffered a remarkable fall between 2008 and 2013, going from 376 to 242 million euros. Altogether, there was a 35.6% decline in this period, as shown in Figure 9. The largest drop occurred between 2010 and 2011, when the gross value-added decreased by 15.3% or 134 million euros.

Except for Libraries, archives and museums, which had no variation, all subsectors suffered a significant fall in gross value added between 2008 and 2013. The drop was especially relevant in Architecture (68%), followed by Visual arts (44%), Advertising (36%), Audiovisual (33%), Books and newspapers (23%) and Visual arts (7%), as shown in figure 10.

In all cases, the decline in the wealth that these subsectors contribute to the Aragonese economy is associated with a fall in turnover (figure 8), although not always in the same proportion. Thus, for example, Visual arts, Audiovisual, Books and newspapers and Advertising suffered a greater decline in their turnover than in their gross value added, while the opposite occurred in the Performing arts and Advertising. Architecture had an almost similar evolution in both parameters, while the case of Libraries, archives and museums was peculiar since it had a 6% increase in turnover in this period, but its contribution to the Aragonese wealth stagnated.

Figure 10. Evolution of the value added of the CCI



Source: Localcom CCI statistical model (MELCCI).

4. Conclusions

Aragon lost 324 CCI businesses between 2008 and 2013, which represented 8.6% of all the businesses in 2008. However, the relative weight of the CCI within the whole of the Aragonese businesses of all the sectors has varied minimally during the financial crisis: it only decreased 0.1%, going from 4% in 2008 to 3.9% in 2013. In the 2008-2015 period the number of companies increased in the subsectors Performing arts, Advertising and Visual arts, but decreased in Libraries, archives and museums, Architecture, Audiovisual and Books and newspapers.

The jobs lost in the 2008-2013 period in the CCI follows the proportions of the overall decline in all sectors in the Autonomous Community. In the analysed period, 17.6% of the jobs in all sectors were lost, while the decline was slightly lower in the CCI, 17.3%. On the other hand, there was no variation in the percentage of jobs provided by the CCI in Aragon: remaining at 1.8% from 2008 to 2013. The only subsectors that increased their workforce between 2008 and 2013 were Advertising and Libraries, archives and museums. The rest suffered considerable job losses, ranging from 13%, as in the case of the Visual arts, to 29%, as in the case of Architecture.

Turnover experienced a decline of almost 40%, with a strong and steady fall from 2009 onwards. The turnover of the Aragonese CCI businesses went from 744 million euros in 2008 to 450 million Euros in 2013. The only sub-sector that increased slightly its turnover was Libraries, archives and museums. The rest experienced significant declines in their turnover, ranging from 25% in Advertising to 65% in Architecture. The sharp decline in the turnover of Architecture made other subsectors such as Books and newspapers to increase their weight within the total turnover of the CCI in Aragon.

Between 2008 and 2013 the gross value added of the Aragonese CCI suffered a 35.6% drop, equal to 134 million euros, which is similar, although slightly lower, to the decline in turnover. With the exception of the subsector Libraries, archives and museums, the rest of subsectors suffered falls in their gross value added. The greatest loss occurred in Architecture (68%) and the smallest in Visual arts (7%),

The impact of the financial crisis on the Aragonese CCI has been significantly negative in all subsectors, with the exception of Libraries, archives and museums, in which the crisis has had a minor impact. As a result, the economic relevance of the CCI in Aragón has significantly diminished. While the European CCI accounted for 3% of the GDP of the whole of Europe in 2013, in the Autonomous community of Aragon the CCI only represented 1.4% of the regional GDP in that year, and 2.1% in 2008.

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