

Article

Measuring the Sustainability of the Orange Economy

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Abstract: 1. Background. The Orange economy includes creative and cultural activities; and it has aroused great interest, both for research on growth and for public agencies and institutions, which have highlighted its capacity as an economic engine and a generator of sustainable growth. Despite this widely disseminated argument, empirical evidence is scarce. 2. Methods. This paper aims to resolve that, based on an analysis of Orange economy companies in two Spanish regions—the Valencian and Galician Autonomous Communities—for the period between 2000 and 2019. Based on the SABI[®] database, which contains data from the annual accounts that companies must submit to Mercantile Registry, company's data have been grouped into three large subgroups and within activity branches. 3. Results. The Orange economy revenues and earnings have contributed at a higher growth rate than of the economy as a whole. It has achieved higher profitability ratios on a lasting basis over time. Although, there are differences between the various activities included in this sector. 4. Conclusions. The Orange economy can be considered as an engine and a generator of sustained growth over time. Furthermore, results obtained show that the Orange economy is a sector that is resilient against crisis.

Keywords: Orange economy; creative industry; cultural industry; economic sustainability; profitability; growth



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1. Introduction

Creative and cultural activities, more recently encompassed in the Orange economy, have been the subject of great interest in recent decades. They have been attributed great potential as engines of economic growth and sustainable development, a role that has been encouraged by various international organizations. There has been much commentary on the important capacity of the creative and cultural sector to generate sustainable growth from the triple economic, social, and environmental perspective. Accepting this premise, there is a commitment to the creative and the cultural economy that is manifested in the proposal and the implementation of various economic policy measures. However, despite the wide acceptance of the growth capacity of creative and cultural activities, there is a lack of empirical evidence to support this claim. The objective of this paper is to contribute to alleviating the lack of empirical results/evidence. The widespread acceptance of the capacity of creative and cultural activities to generate growth and employment has driven the design and the implementation of economic policies to stimulate and to support these activities in several economies. This study provides empirical evidence not only for the sector as a whole but also for the different activities that compose it, information that can be very useful for policy design. Thus, the questions we propose to answer are the following: Is the Orange sector capable of generating sustained growth over time at a higher rate than other economic sectors? Furthermore, does it make sense to speak of the Orange economy as a sector or, on the contrary, is it a grouping of activities with little relation?

The paper begins with a literature review on sector delimitation and its contribution to growth and to sustainability and then gives way to the empirical study carried out. It considers Orange economy companies in two Spanish regions: the Valencian Community and the Galician Community—both coastal regions, one on the Mediterranean and the other on the Atlantic. For information selection, the SABI[®] database, “Sistema Anual de Balances Ibéricos” (Annual System of Iberian Balance Sheets) has been used; and, the companies that, according to the National Classification of Economic Activities (CNAE-2009), belong to the sectors included in the creative and cultural sector have been considered. The data collected are part of the information related to the annual accounts that companies must submit to the Mercantile Registry. The sample consists of 8191 companies, for the analytical period from 2000 to 2019. The activities included in the Orange sector are diverse, so it seems appropriate, in addition to the overall sector analysis to delve into the characteristics and companies’ results according to the different types of included activity branches. The study shows a picture of the Orange sector structure based on the classification of activities. The companies are grouped according to their CNAE in three large subgroups: creative manufacturing, cultural industries, and creative sectors. The various subgroups are, in turn, made up of groups of activities called branches, which are grouped according to their affinity.

The analyses carried out show that revenues, the number of companies, and the results of the Orange sector have grown proportionally more than the economy as a whole, so our results support the claim that the Orange economy is the driving force behind growth. Furthermore, if we consider the types of activities that comprise the sector and its dynamism, they have been greater than the economy as a whole, except in some cases. In terms of profitability, the results obtained from the data analysis allow us to affirm that the Orange sector as a whole presents good sustained profitability over time, as well as showing greater resilience than other sectors in the face of the crisis unleashed in 2008. Finally, it is necessary to point out that a complete assessment of the sustainability of the Orange sector requires addressing the social and the environmental pillars.

The remainder of the paper is structured as follows: first, a theoretical framework is presented; second, the employed methods are presented; third, the qualitative study is presented; and finally, some discussions and future works are provided.

2. Theoretical Framework

This section briefly presents the approaches and analyses considered relevant to the work. It begins with a delimitation of the Orange economy term, and it goes on to analyze the relationship between it and sustainable development. Once the study object has been defined, an analysis is made of the information the literature can provide to evaluate the economic and social sustainability of this sector. For this purpose, a systematic review was carried out based on several searches in the Web of Science. The search terms used were: “creative economy” and “cultural economy”; “creative economy” and “sustainability”; and “creative economy” and “growth”. The protocol of a systematic literature review was followed, selecting only those articles that addressed the objectives concerning aspects such as the concept and its delimitation, sustainable development, growth of economic variables, and gender issues [1].

2.1. Orange Economy Delimitation

The term Orange economy was coined by Felipe Buitrago and Iván Duque in the publication “The Orange Economy; an infinite opportunity” published by the Inter-American Development Bank [2]. This includes those activities that are part of what is known as the creative economy and the cultural sectors. The grouping of creative activities together with cultural activities in what is known as the creative sector has a practical origin related to the emergence, in the United Kingdom, of public policies focused on promoting the valorization of cultural activities and the issue of copyright. In the late 1990s, the action plan carried out by the UK Department for Culture, Media and Sport (DCMS) approved

a public agenda for the promotion of cultural activities. The plan included diverse and unrelated sectors such as museums, video games, and architecture [3].

The term creative economy was popularized by John Howkins in 2001 [4], encompassing creative activities that can be expressed through art, culture, or innovation. Howkins argues that creative industries that originate from individual creativity, skills, and talent have the potential to create wealth and jobs through the generation and the exploitation of intellectual property. According to the United Nations (2004) [5], the creative economy is characterized by “activities having a strong artistic component to any economic activity producing symbolic products with a heavy reliance on intellectual property and for as wide a market as possible”. Howkins includes within the creative economy activities such as innovation and development, building, software, television and radio, design, music, film, games, advertising, architecture, and the arts.

The creative economy as a whole can be defined as one in which companies promote creativity, knowledge convergence and advanced scientific technology, relying on coordinated learning to create new markets and new jobs [6]. Although there is no single definition of the creative economy, nor is there consensus on what activities should be included in the creative economy, it is widely accepted that the creative industries are at its core and that all definitions adopt the concept of “creativity” as an essential characteristic. The combination of creativity and goods gives rise to emergence of a new product class, “creative goods and services”, including the group of “cultural goods and services” which, in addition to incorporating creativity, have an artistic or cultural content [7]. Nevertheless, aspects related to creativity in a broad sense are not only generated by cultural and creative industries but should also include innovation [8]. Beyond the debates on what and what is not included in creative economy, for the set of activities in that field, a common meeting point or common character is identified based on three aspects; firstly, creativity, arts and culture as raw material; secondly, existence of a relationship with property rights; and thirdly being an activity framed within a creative value chain [2].

UNESCO (2009) [9] points out six pillars that form the cultural domains: cultural and natural heritage, performances and celebrations, visual arts and crafts, books and press, media and design and creative services, deeply connected to local intangible assets, cultural heritage and other economic domains related to tourism and recreation [10].

The Orange economy includes the cultural economy, the creative industries, and the areas that support creativity. Following Rausell Köster et al. [11], the activities of the Orange economy are grouped into three major subgroups: creative manufacturing, cultural industries, and creative services. Although some authors consider that manufacturing by itself should not be included, since it is not a creative activity, its inclusion is considered appropriate. The creative economy is an evolving concept as the phenomenon is very dynamic and the products generated by these industries are not traditional products, therefore they are not easily quantifiable [10]. The study includes those companies registered with a main activity in one of the CNAE-2009, although companies may additionally be registered in other areas.

Although this paper does not analyze the creative sector from a spatial perspective, it is well known that cultural and creative activities are concentrated in cities and in certain areas within them [3,12].

Despite the strong development of the creative economy concept and its wide repercussion in political and academic circles, the literature on the creative economy, creative classes, and creative cities has been criticized for its conceptual vagueness and aseptic nature, for responding only to certain economic groups interests, or for concealing urban segregation phenomena [3,13].

2.2. Creative Economy, an Economic Model towards Sustainability

The creative activities and culture sector have gained importance in recent years, betting on the “Creative Economy” as an alternative to traditional development models [3].

Many countries around the world are seeking to adopt policies to foster cultural and creative industries for economic growth, employment expansion, and nation branding [14].

The growing recognition obtained by the creative and cultural sector is due, in part, to the commitment to creativity and culture on various international institutions. The release in 2004, 2008, and 2010 of the Creative Economy Reports published by the United Nations Conference on Trade and Development [5,7,15] stimulated interest in this subsector as a possible source of economic dynamism in developing countries. These reports advocated the harnessing of creativity and the deployment of cultural resources in developing countries as a means for growth, job creation, and export expansion [16]. The rise of the Orange economy was also due to work by the UN within its sustainable development agenda framework; with the proximity to the expiration of the Millennium Development Goals, progress is being made in the development and the definition of the Sustainable Development Goals (SDGs), introducing the cultural sector as a major player. Thus, cultural industries attain an important relevance in the post-2015 development agenda.

The activities included in the Orange economy are very diverse and the impact of the different types of activities on growth needs to be studied in greater depth. Moreover, there is a lack of empirical evidence and methodologies to measure them [17].

Cultural and creative economy initiatives have gained space in the last two decades. Many voices point to the potential of the cultural and creative sector as a driver of sustainable development [18]. Its powerful role as a resource for the improvement of local cultural, social, environmental, and economic conditions is recognized. It is considered a potential resource for generating economic growth, promoting cultural diversity, human development, and social cohesion [19]. Creativity promotes inclusive social progress and empowers people to take responsibility for their own economic, social, and personal development; and, it fosters innovation, aspects that contribute significantly to sustainable growth [14]. “Creativity, knowledge and access to information are increasingly recognized as powerful drivers of economic growth and the promotion of development in a globalizing world” [7]. In 1987, the United Nations World Commission on Environment and Development, the Brundtland Commission, defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” [20]. Years later, the World Commission on Culture and Development held in 1995, in its report *Our Creative Diversity* [21], highlighted the possibilities of the cultural sector for sustainable development. These possibilities were made explicit at the UNESCO summit held in Stockholm in 1998, elaborating an Action Plan to guide the implementation [22]. They were further developed in the 2005 Convention on the Protection and Promotion of Diversity of Cultural Expressions [23], an activity that continues today; and, follow-up reports on the guidelines and actions set out in the 2005 Convention were published in 2015 and 2018 [24].

In 2012, the United Nations conference was held with the aim of launching a process to develop a set of sustainable development goals [25]. The final agreement of the conference entitled “The Future We Want” points to the role of culture and creativity for sustainable development but falls short of fully understanding its potential [16]. It was in 2015 when culture was introduced into the 17 SDGs with the 2030 Agenda that took over from the Millennium Development Goals (MDGs), the global agenda promoted between 2000 and 2015. Although none of the 17 SDGs focuses exclusively on culture, the 2030 Agenda includes explicit references to cultural aspects. The new global agenda places culture as a relevant sector for development, in which cultural and creative industries not only play an important role in the production of new technologies or creative ideas but also in the generation of non-monetized social benefits [19]. At the 74th United Nations General Assembly, the year 2021 was declared the International Year of Creative Economy for Sustainable Development [26].

Many studies point to the positive effects of creative and cultural industries on sustainability [12,27]. Creative industries and culture have a positive impact on the development of inclusive societies. A shared sense of cultural identity and cultural values help strengthen

social cohesion [14,28]. They provide inclusive social development and encourage people to take responsibility for their own progress. They also promote innovations that are crucial for sustainable development [29–32]. Cultural and creative activities are activities that promote tolerance and social inclusion. Creative industries provide an invaluable social cement, contributing to the feeling of belonging to a society [33].

Contrary to previous visions of creative and cultural economies as generators of sustainable growth, there are voices that are critical in this regard [34,35]. There is debate in the academic literature regarding the absence of links between the creative economy and sustainability. It is far from clear that these sectors contribute to social and environmental sustainability. In relation to the social pillar, critical views point out that precarious labor conditions often present in these sectors do not seem to support the idea of the culture and creative sector as leading to sustainability. For example, the gentrification phenomena, which attracts the creative class, leads to the displacement of underprivileged classes to other areas or neighborhoods of the city [36]. Regarding the environmental pillar, there is a fairly widespread assumption that creative and cultural industries generate less impact on the environment and they are inherently clean. Nevertheless, this consideration does not take into account that many of the industries included in the creative and cultural sector consume a lot of energy and are often extremely polluting.

Although the creative and the cultural industries have positive aspects such as their capacity to generate income, employment, and social inclusion, there are also less positive aspects. The sector faces extreme levels of demand uncertainty, monopolistic tendencies, complex labor markets, plagiarism, and theft of property rights [28].

Beyond the acknowledged benefits of creative economy and culture as an engine or a model of sustainable development or the criticisms of this assumption, there is a lack of empirically proven results [14]. It should be borne in mind that this is a sector that is difficult to measure because it involves numerous self-employed and part-time workers [37]. In addition, the creative and cultural sector, in its own denomination, includes activities with very different characteristics that involve different consumption of environmental resources, different forms of activity organization or human resources, among other aspects [38]. In view of this diversity, an intra-sectoral analysis of the different activities included in the Orange economy denomination seems appropriate.

2.3. Growth of Creative Economy and Cultural Sectors

Much research has focused on the potential of the cultural and creative economy to become the new engine of the economy after the economic slowdown following the 2008 crisis [13]. The creative and cultural economy has attracted great interest from researchers because they are considered drivers of economic growth for their value creation capacity and for their impact on innovation, resulting from the activation of cross-fertilization processes between sectors [17] and generating positive externalities in other sectors [3]. They act as catalysts for innovations taking place in other sectors and they are one of the fastest developing sectors of the world economy, generating income growth, new jobs and export revenues [14,39].

The interest in positioning the creative economy as an engine of growth has even been the subject of attention from supranational organizations, such as the United Nations Educational Scientific and Cultural Organization. They are an important instrument for regional and urban innovation policies, as well as for economic growth [7], and they represent a strategic priority sector on the European Union's agenda [3]. Studies have suggested a strong relationship between the presence of creative industries and regional development. Creative and cultural industries are important contributors to the richest regions' economies in Europe [17]. Data derived from several countries indicate that in many cases this sector has been growing faster than traditional sectors such as manufacturing [16]. Statistical figures show that the share of the creative economy in the GDP of the most developed countries is steadily increasing [40].

The creative economy is often presented as an antidote to low growth and crisis. The cultural and creative sectors have shown, in European countries as a whole, more resistance than the rest of the economy to the crisis onslaught [11]. In the UK, following the financial collapse of 2008, the creative and cultural sector has grown in 2015–2016 by 7.6% compared to a growth rate of 3.5% for the overall economy [41]. The creative economic industry has been shown to have a positive effect on GDP in many developing and developed countries [3,6].

Focusing on the cultural sector, the recognition of the potential for the economy opened an avalanche of research seeking to better understand the dynamics of cultural industries and how they produce economic growth. Over the past two decades, cities around the world seeking new sources of economic growth and revitalization have invested significantly in a variety of cultural economic development strategies [42,43]. Looking at the studies conducted, specifically for the United States, the results indicate that, at the national level, the cultural economy did not experience a significant decline during the recession between the years 2006 and 2009 [44]. On a regional scale, however, it can be observed that this variation was not uniform and those in which a cultural economy had grown the most in the boom period were the most affected by recession. In conclusion, there is growing scientific evidence that the impacts of cultural and creative sectors have perceptible effects on aspects related to productivity and the wealth of regions, e.g., in USA, Australia, and Europe [11].

Much work has demonstrated the benefits of the creative economy and culture on growth, employment, and income generation, but voices have also been raised with a more critical view. It should not only seek growth but also think about the kind of growth that is desired. Growth is positive but it should be noted that rising incomes fail to solve a wide range of social and economic problems, even for the wealthy. Growth per se does not lead to the improvements that society demands [45].

The existing levels of creative economic growth may appear to provide overall benefits, and it is quite clear that the opportunities and rewards of such growth are not shared equally. Banks (2018) describes several limitations of growth. First, growth is not shared with society through better wages and more stability, but instead reverberates into higher profits for those already in a dominant position. Secondly, the creative and cultural economy has not addressed environmental issues; it has been taken for granted that they are “intrinsically clean”, which is not at all proven. Third, the creative growth approach tends to reduce culture to an economic resource. Lastly, the approach to creativity and culture is not aimed at the pursuit of cultural democracy but at growth oriented to meet seemingly inexhaustible consumers demands.

3. Hypotheses, Materials, and Methods

3.1. Hypotheses

Based on the article objectives, firstly, to increase knowledge about the characteristics of the different activity blocks that constitute the Orange economy and, secondly, to assess the extent to which the Orange sector has the capacity to generate sustainable growth, we propose the following hypotheses:

Hypothesis 1 (H1). *The growth of Orange activities has been greater than the growth of the economy as a whole. The creative and cultural sector is a growth engine.*

Hypothesis 2 (H2). *The Orange economy is a sector with economic sustainability. The group of companies in the Orange sector achieves higher profitability than the average of the economy and this higher profitability is maintained over time.*

Hypothesis 3 (H3). *The activity branches included in the Orange sector show different dynamism levels. There are differences in growth rates between the different blocks that make up Orange sector activities.*

3.2. Methodology

To analyze the sector structure at its internal level, certain variables (income, earnings, etc.) are examined for their behavior for each block. To reduce data, a factor analysis is performed and correlations between the different variables are studied for each activity block that constitutes the Orange economy. Spearman's correlation index is used to analyze the relationship between selected variables.

To examine the evolution of the sector, an ANOVA analysis and the comparison of independent samples with unifactorial variances are performed, applying Levene's test to determine whether equal variances can be assumed or whether the curve distribution does not allow the assumption of equal variances. Subsequently, the t-test is used for the equality of the means to determine the results significance, with a 95% confidence interval of the difference. In turn, statistics are used to measure the variables under study of companies belonging to the Orange economy (in number, percentages, and average values).

3.3. Samples and Techniques

In order to carry out the various analyses, information has been extracted from the annual accounts of the companies included in the Orange economic sector. For the sector delimitation, the classification made by Rausell y Boix (2019) has been followed in which the activity codes included in the Orange economy are determined by their activity code according to National Classification of Economic Activities, CNAE-2009 at 4 digits (the two-digit CNAE codes include all the four-digit activities that fall under this grouping level). These are organized into three levels: CNAE-2009 subgroups, branches, and activities. Three subgroups are considered: creative manufacturing, cultural industries, and creative services. In turn, the last two are divided into several activity branches. The different analyses performed will show information at the subgroup and activity branch levels.

Data about enterprises were obtained from SABI[®], a database containing information on the annual accounts of Spanish and Portuguese companies. SABI[®] collects information from companies that are obliged to file their accounts with the Mercantile Register. These firms are mainly incorporated as Private Limited or Public Limited companies. In the selection of companies, a search was made of all those belonging to the CNAE indicated and that have provided data in 2019 in the two regions considered, Valencia and Galicia. The search yielded a total of 8191 companies.

Of the total number of companies considered, 67.5% correspond to the Autonomous Community of Valencia and 32.5% to the Autonomous Community of Galicia. In terms of weight in the Orange economy, it represents 1.49% of the total number of companies in the Valencian case and 1.34% in the Galician case. Regarding an intra-sectorial analysis, in both territories the subsector with the largest number of companies in the Orange economy is creative services, which represents 64% in Galicia, while in the case of Valencia the percentage is reduced to 51.4%. As for the other two blocks—the creative manufacturing and the cultural industries—the weight by the number of companies is similar in the case of the Valencia region; however, in Galicia the number of creative manufacturing companies barely reached 8.2%. At the branch level, by the number of companies, programming stands out (20.3%), followed by creative manufacturing (20.1%), and publishing, video games and graphic arts (15%). This hierarchy is similar in the territorial areas analyzed, although in Galicia the weight of information and communication activity branch (12.5%) far exceeds that of manufacturing (8.2%) (See Figure 1 and Table A1).

In terms of the legal form of the organizations analyzed, 96.3% are incorporated as limited liability companies. Furthermore, there are no substantial differences by subgroups and branches, except in the case of radio and television, a branch in which public limited companies account for 27.4% of the total number of companies in the branch. This characterization seems to indicate that the Orange economy does not require companies to go to the capital market in search of financial resources, as corporations can do, and that, therefore, companies can cover their financial needs through shareholdings, equity generation, and loans and credit.

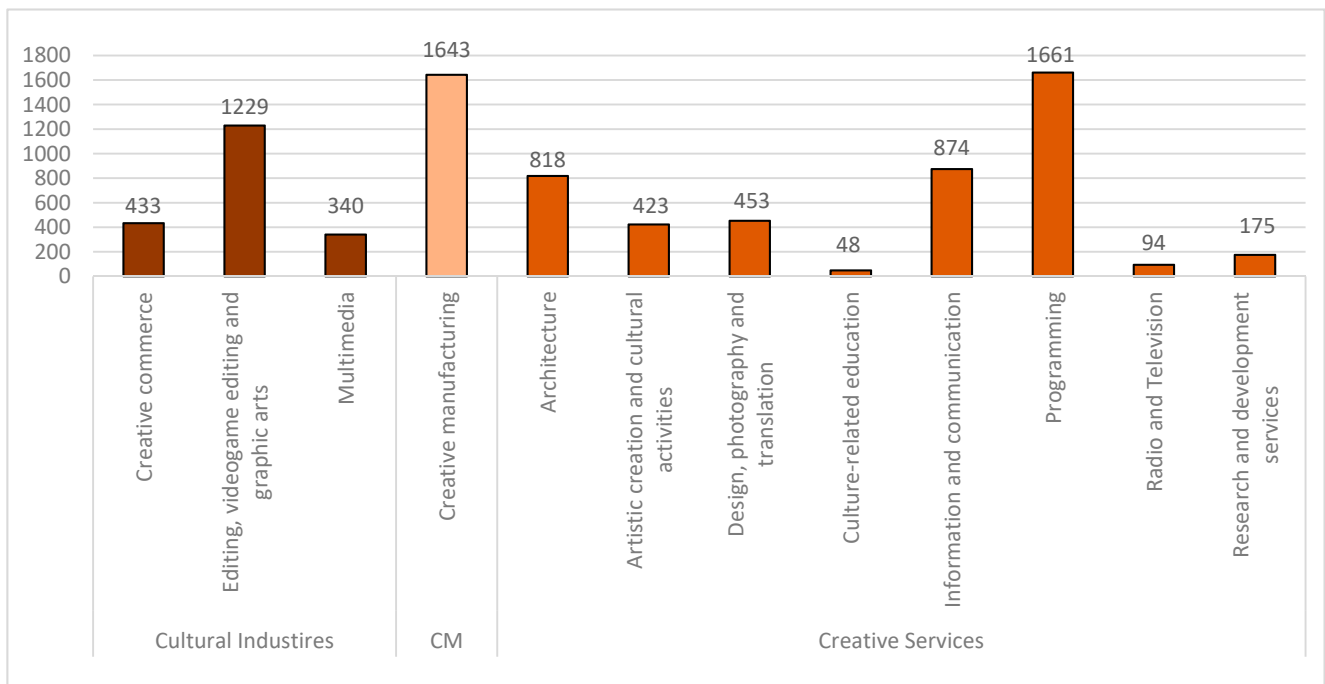


Figure 1. Number of Orange economy companies classified by subgroups/branches of activity, 2019. Source: The authors base on SABI® from 2019 information.

4. Results

To answer Hypothesis 1, the variables operating income, total assets, shareholders' equity, income before taxes, economic profitability, and financial profitability were analyzed for each year (2000–2019). In order to reduce the variables, a factor analysis was performed. The result of the correlation matrix yielded a value of 0.508 for the Kaiser Mayer Olkin test with a significance of ($p < 0.001$). The variance explained by the three factors is 75.865% (see Table A2).

The first factor of the factorial analysis, which can be identified as company size, includes the variables of shareholders' equity, assets, and operating income. These three variables explain 39.12% of the variance. The second factor is formed by the result variables, which shows that it has no clear relationship with the previous variables, and it represents 18.975%. The third factor is composed of profitability variables, both economic and financial, which indicates that their behavior is different and they are not related to the same intensity with the other variables (see Table A3).

Once the factors have been identified, the correlations between the most selected variables of each factor are analyzed: for factor 1 (size), the most representative variable is considered to be operating income; for factor 2, earnings, only this variable is included since it is a single variable; and, for factor 3, profitability, specifically financial profitability is considered since it better represents the concept of profitability as it is an indicator of the relationship between the company's revenues and invested equity.

The Orange sector's revenue growth has been much higher than the economy's GDP. The Orange economy has experienced a significant increase for the period analyzed (2000–2019), more than triple the value at the beginning of the period. Thus, there was an increase of 344.9% in the sector's revenue at current prices compared to a GDP growth of 87.6% in both regions (see Figure 2 and Table A4.). In terms of proportion, GDP revenues from the Orange economic sector reached 4.8% of GDP in 2019 compared to 2.6% in 2000. Another relevant figure is the turnover in Spain, which has increased by 22.1% in the period 2015–2019; an interval in which the Orange economy has risen by 39.9%. Growth occurred in all subgroups, with the creative services subgroup experiencing the largest increase in percentage terms (693.6%).

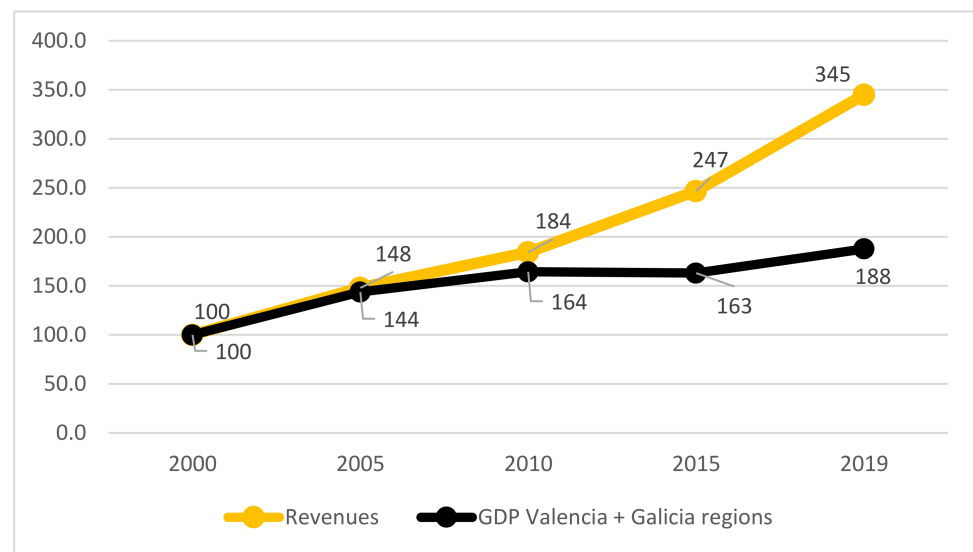


Figure 2. Growth rates of the Orange sector revenues and GDP of the regional economy. Source: The authors base on SABI®.

Another notable aspect is the increase in revenue and the number of companies in a period that has coincided with one of the biggest crises in the Spanish economy (spanning 2008 to 2014, when after several years of decline the annual GDP growth rate reached 1.4%), which reveals the attractiveness of the Orange economy and its resilience, (Figure 3 and Table A5).

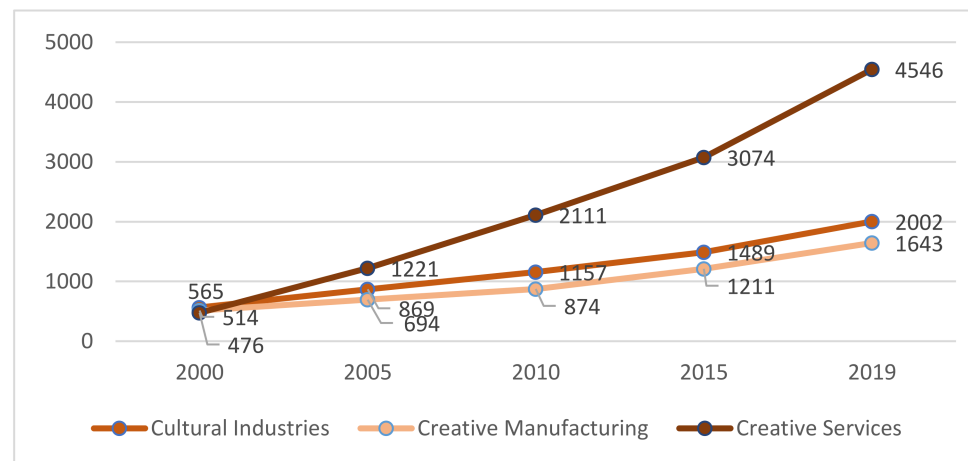


Figure 3. Growth in the number of companies in the Orange economy. Source: The authors base on SABI®.

In terms of earnings before taxes (EBT) in current terms, the Orange economic sector has increased across 19 years more than 13 times their initial value (1316.2%), from €65,083 thousands in 2000 to €921,709 thousands in 2009 (see Table A6), a fact that evidences the good economic health of the sector. The EBTs of the Orange economy have been beneficial for society. Companies that obtain good profitability pay higher corporate taxes. If we consider that the tax rate is 25%, based on the data, the estimated collection of the State Agency of Tax Administration (AEAT) for corporations in 2019 will amount to €230,427.3 thousand. As for VAT, with a general tax rate of 21%, the VAT charged is estimated at €293,456 thousand.

In the analysis of the sector's growth, it was considered appropriate to study the evolution of the correlations between the selected variables, measured by the Spearman

coefficient (Table A7). For this purpose, the years 2005 (before the crisis), 2010 (during the crisis period), and 2019 (before the crisis caused by the COVID-19 pandemic) were considered. In the case of the correlation between revenues and earnings, the index is similar over time, although it decreases during the crisis period. As for the variable earnings and financial profitability, the index shows a moderate and unequal relationship over time, with a very weak relationship in the crisis period. In the case of financial profitability, measured by the ratio between earnings and shareholders' equity, the low correlation between earnings and profitability can only be explained by a low relationship between earnings and shareholders' equity. The decrease in the correlation between earnings and profitability in 2010 compared to 2005 is explained by a much larger drop in earnings than in shareholders' equity. The higher ratio in 2019 is explained by a higher growth in earnings than in shareholders' equity. Although the profitability of the sector is related to the following hypothesis, it has been considered appropriate to include it in this section, since the objective is to analyze its relationship with the variable revenues and earnings. The correlations between the different blocks of the Orange economy have also been analyzed (see Table A8).

It can be concluded that the first of the hypotheses is fulfilled, since the high growth of the Orange economy has been proven, with rates—even in periods of crisis—much higher than those of the Spanish economy as a whole.

Hypothesis 2. Profitability has been analyzed on the basis of the two traditional ratios: economic profitability and financial profitability. Economic profitability is determined from the ratio of earnings before taxes to total assets. Financial profitability is determined from the ratio of earnings before taxes to equity.

We understand that an activity will be economically sustainable when it is durable over time. For this, it is not enough for the level of income to increase or to be maintained in real terms. In addition, the earnings must be positive, although not necessarily during each of the years considered. The two ratios mentioned, economic and financial profitability, are also indicators of sustainability. The maintenance of an activity over time and, therefore, its capacity to generate employment in a sustainable manner in a free-market context requires that the capital invested in this activity achieves an attractive return on capital. If returns are positive and higher than in other sectors, capital flows into the activity, increasing income and employment.

A key indicator of economic sustainability is economic profitability over time, which is shown in Figure 4 and Table A9. The first conclusion that can be drawn is that the economic profitability of the Orange economic sector is higher than the general company's profitability in Spain. In fact, there is an increase in the differences in each year of the 2000–2019 period, up to 11.3% compared to the 5.9% on average for the country.

If we look at the evolution of economic profitability, we can see that before the crisis, the profitability of the Orange sector was lower than that of the Spanish economy as a whole, but this behavior has changed since the crisis, as the economic profitability ratio of the Orange sector is much higher than that of the Spanish economy as a whole.

Financial profitability, in terms of evolution, shows a behavior similar to that of economic profitability. Before the crisis, the ratio was lower than that of the economy as a whole, and then it reversed. In this case, as in the case of economic profitability, which measures the proportion that EBT represents of the company's level of equity; if we analyze the equity, it can be seen in Figure 5 and Table A10 that during the period 2000–2019 it multiplied more than 5 times, which again demonstrates the strength of the sector.

It can be concluded that the second hypothesis is fulfilled by demonstrating that since 2010 the economic and financial profitability of the Orange economy has substantially exceeded that obtained by the Spanish economy.

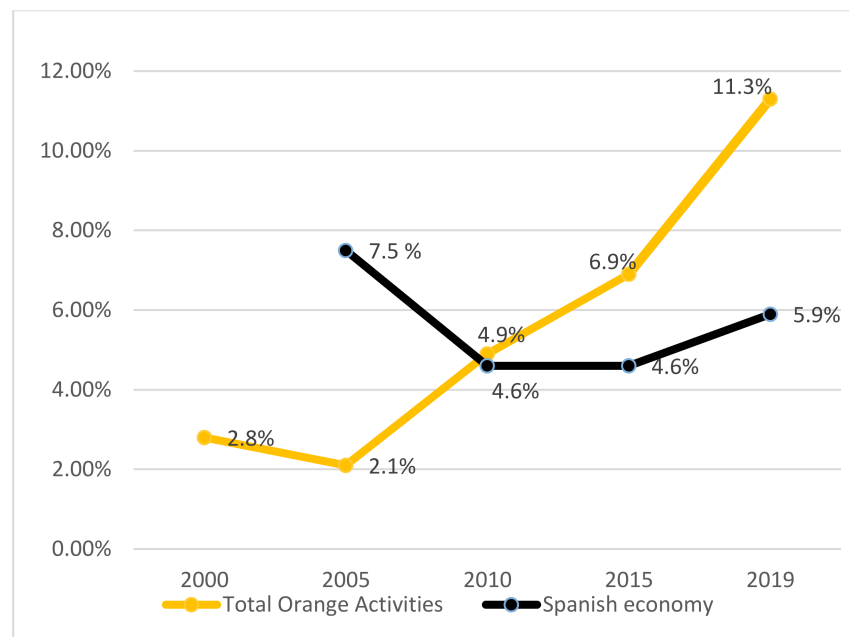


Figure 4. Evolution of economic profitability in the Orange sector compared to the Spanish economy for the period 2000–2019.

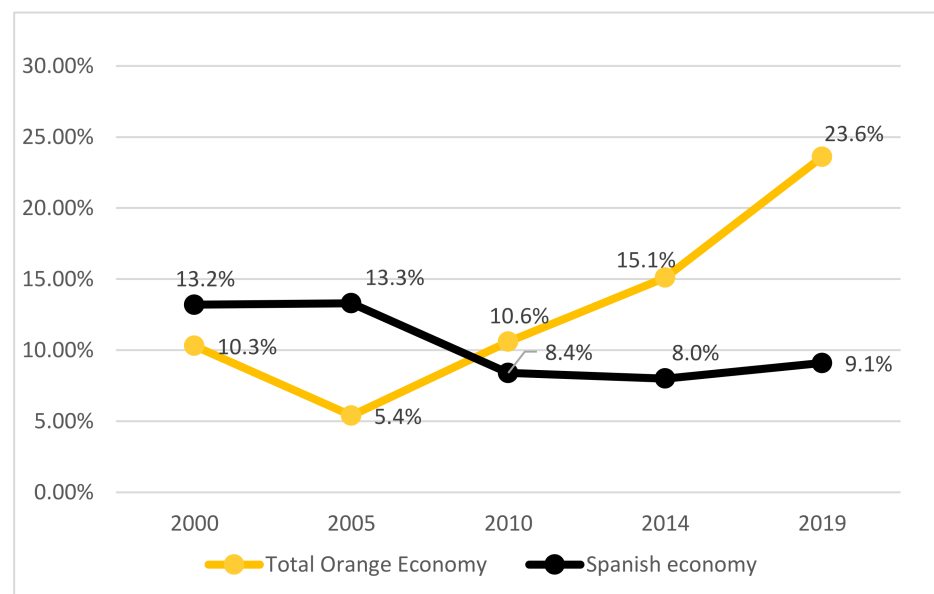


Figure 5. Evolution of financial profitability in the Orange sector compared to the Spanish economy for the period 2000–2019. Source: The authors base on SABI® and INE (2021). Financial profitability is measured by dividing earnings before taxes by equity.

Hypothesis 3. It is noteworthy that for the period 2000–2019, operating revenues of the different subgroups and branches of the Orange economy have grown above the GDP growth at current prices, in all cases except for radio and television, which have suffered a decrease. The subgroup with the highest growth rate is creative services (693.6%). At the branch level, design, photography, and translation (3082.6%); artistic creation and cultural activities (1222.2%); and research and development services (1017.6%) stand out. Another noteworthy block is programming, which with a growth rate of 924.7%, ranks second in terms of turnover (see Table A4). The increase in revenue from the Orange economy is related to the sharp increase in companies from 1550 organizations in 2000 to 8191 in 2019. This represents an increase of 426.8% (Table A5), a general increase in all subgroups and

all branches. This is evidence of the sector's strength. There is an almost 100% correlation between turnover and the number of companies generated in all branches. In fact, the number of companies also grows in the branches with the highest turnover, such as creative manufacturing (319.6%), programming (1019%), and multimedia (772.7%). In addition, the spectacular growth of companies in education (2400%), architecture (1363.3%) and artistic creation (1321.9%) activity branches is noteworthy, which shows the absence of barriers to entry, except in the radio and television branch, where corporations have a greater presence (27.4%) and a negative correlation has been observed between turnover and company creation.

Table A11 shows the significance level of revenue by activity branches, obtained after applying a unifactorial variance analysis and Levene's test for the most representative activity branches of the Orange economy. Levene's test allows determining whether or not equal variances were assumed in the distribution of the compared data. The earnings show that the creative manufacturing branch has generated the most revenue in a very significant way $\text{sig} < 0.001$ (***) when compared to the other branches, except when compared to design and photography, which is the second with the highest average revenue.

If we talk about earnings in 2019, in this branch, the average earnings per company are 8.63 higher than the earnings per company for the sector as a whole. In the research services activity branch, the figure is also very high but somewhat lower, 7.56 times. Once again, the radio and television activity branch stands out in a negative sense, with losses amounting to 9.2 times the sectoral average. It should be taken into account that these activities are either public entities with the objective of providing a social service or they receive subsidies from the public sector. The case in culture-related education, with only 1.9% of the sectoral average, its average revenue amounted to 19% in 2019. (See Table A6)

An earnings comparison with revenue shows that the design, photography, and translation activity branch—in fourth place of the sector's revenue (8.2%)—accounts for 47.8% of the sector's total earnings. On the other hand, for the manufacturing activity branch, the behavior is reversed, with 45% of operating revenues and 14.5% of EBT. Programming, on the other hand, with 14.3% compared to an initial 10.2%, shows a similar proportion. Also noteworthy are the research services activity branch, with 16.1% of the earnings, and information and communication, which reached 12.6%.

If we analyze the earnings evolution, the high growth obtained by the design and photography activity branch is striking, which has gone from a value of €608 thousand in 2000 to €440,448 thousand in 2019. The initial value is multiplied by a little more than 724 times in 2019. In addition, the dynamism of the programming activity branch should also be noted, with earnings increasing from €5160 thousands in 2000 to €93,817 thousands in 2019, (Figure 6 and Table A6). Activities such as those carried out by the information and communication and research services activity branches, despite not being the most important in terms of revenue, have improved significantly, with growth rates of 1175% and 27,032.4%, respectively.

In terms of total assets, the analyses reveal that the branch requiring the most assets is creative manufacturing, reaching 30.6% of total assets in 2019. Other activities with high proportions are those related to: artistic creation (13.7% of the total) and programming (12.7% of the total). On the contrary, the education for culture activity branch requires few assets in relation to the sector average, which is not contradictory with having been the area with the highest growth in assets during the period 2000–2019, achieving a growth rate of 3900%. Design and photography again expresses its dynamism, with a 2715% growth in assets during this period. In similar terms, programming (1464.8%) and research services (1668.6%) activity branches show a similar growth in assets, with an increase of 249.2% in 19 years, which is indicative of an increase in investment in this sector (Figure 7 and, Table A12).

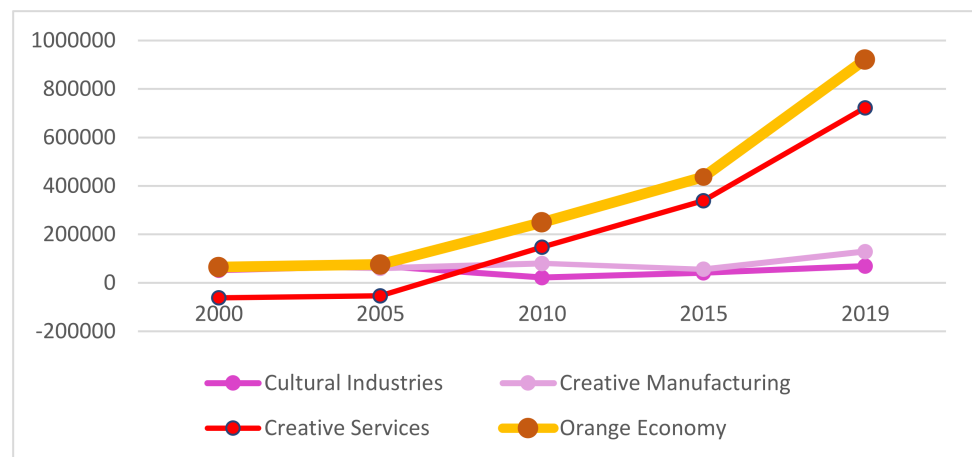


Figure 6. Earnings before taxes of Orange economy ordered by subgroups, 2000–2019. Source: The authors base on SABI®.

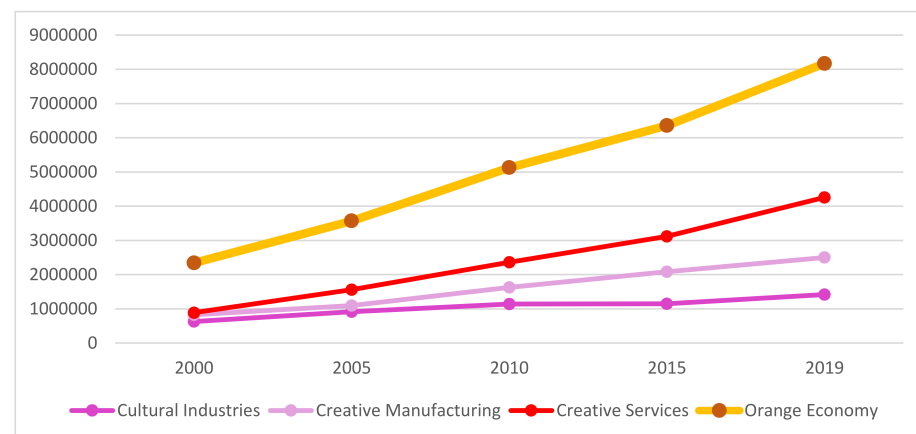


Figure 7. Total assets of the Orange economy by subgroup (thousands of euros at current prices). Source: The authors base on SABI®.

Additionally outstanding is the performance of the research and development services activity branch, with 22.9% of economic profitability, double the sector average and four times the national average. Its average earnings before tax has increased by 2070.6%, and that it has gone from profits of €546 thousand in 2000 to €148,143 thousand in 2019—the good performance of this branch is evident. However, its revenue over the total of the sector accounts for 2.8%, which places it in seventh place in this section. Information and communication also deserves a mention in this section, since with 18.7% profitability it is the third most profitable branch. Moreover, its growth in earnings before taxes has increased by 1175.5% over the last 19 years. On a negative note, it is worth mentioning the poor economic profitability of radio and television, as it is a low-yield sector with a need for high assets. The case of artistic creation is similar, with a low profitability of 0.7%, as it has an increase in assets that is much higher than EBT. Finally, it is worth noting that the education related to culture activity branch, without requiring many assets, has a return clearly below the average for the sector (Table A9).

The application of unifactorial variance method and Levene's test make it possible to obtain the degree of significance in this section. Thus, Table A13 shows that the creative manufacturing activity branch has the highest level of assets in a significant way, but this is to the detriment of its economic profitability since this ratio does not show any significance with respect to the other blocks. The profitability of the design and photography activity branch is significant but only compared to editing, videogame editing, and graphic arts

(third in terms of revenue). Moreover, even though it is the most profitable, it is not statistically significantly more profitable than the other activities. The comparison of economic profitability between the other branches does not allow us to conclude that the returns are statistically significant. Another noteworthy fact is that of the creative manufacturing and editing, videogame editing, and graphic arts, which occupy first and third place in turnover, respectively, and despite having financial profitability below the sector average, they have been higher than the Spanish average.

To determine the significance of financial profitability, it is necessary to apply variances with Levene's test. In general terms, manufacturing repeats as the activity branch with the highest equity, and it is significant with respect to programming and to editing, videogame editing, and graphic arts (Table A14). In any case, it is not as significant as total assets. There are not statistically relevant differences in financial profitability; not even the design, photography, and translation branch, which had significant comparisons in its favor, shows its best financial ratios in statistical significance.

Figure 8 visually shows the importance or weight that each of the activity branches has in the Orange economy as a whole, measured in 2019 revenues (size of the figure), together with the dynamism shown in the period 2000–2019; comparing turnover levels (vertical) and % financial profitability (horizontal), it can be said:

- It can be seen that the star sector of economic sustainability is the design, photography, and translation activity branch, with the highest growth in revenue, the highest financial profitability, and ranking fourth in terms of revenue.
- The branch with the greatest current weight is creative manufacturing, which represents an average turnover for the period 2000–2019 of almost 50% of the sector's total turnover. It has experienced a growth of 166.6% in that period, above the regional GDP (INE, 2021), which grew by 87.6%. Its financial profitability was 11.8% in 2019, above the national average (9.1%).
- Few activities in Spain can boast a growth pattern of 924.7%, have the third highest financial profitability (18.4%), and hold the second place for revenue in the Orange economy (14.3%), such is the case of the programming branch activity.
- A fourth branch with an outstanding position, but lower than the previous three, is research services. Its high profitability (38.5%) is the second highest in the sector. Moreover, its growth was 1071.6% during the period under study. On the other hand, its level of turnover is not very significant, representing only 2.8% of the Orange economy.
- Finally, it is worth highlighting information and communication activity, since it ranks third in terms of financial profitability (38.5%). Although its growth (354.8%) was lower than that of other more dynamic blocks, it was higher than the average for the sector and for GDP. This block accounts for 7.9% of the sector's total and therefore occupies a well-deserved fourth position.

It can be concluded that the third hypothesis is fulfilled, since it has been shown that there are differences in the variables' evolution in the different blocks and branches of activity during the period analyzed. However, the ANOVA shows that the differences are not significant, so their inclusion in the same sector can be considered (see Tables A13 and A14).

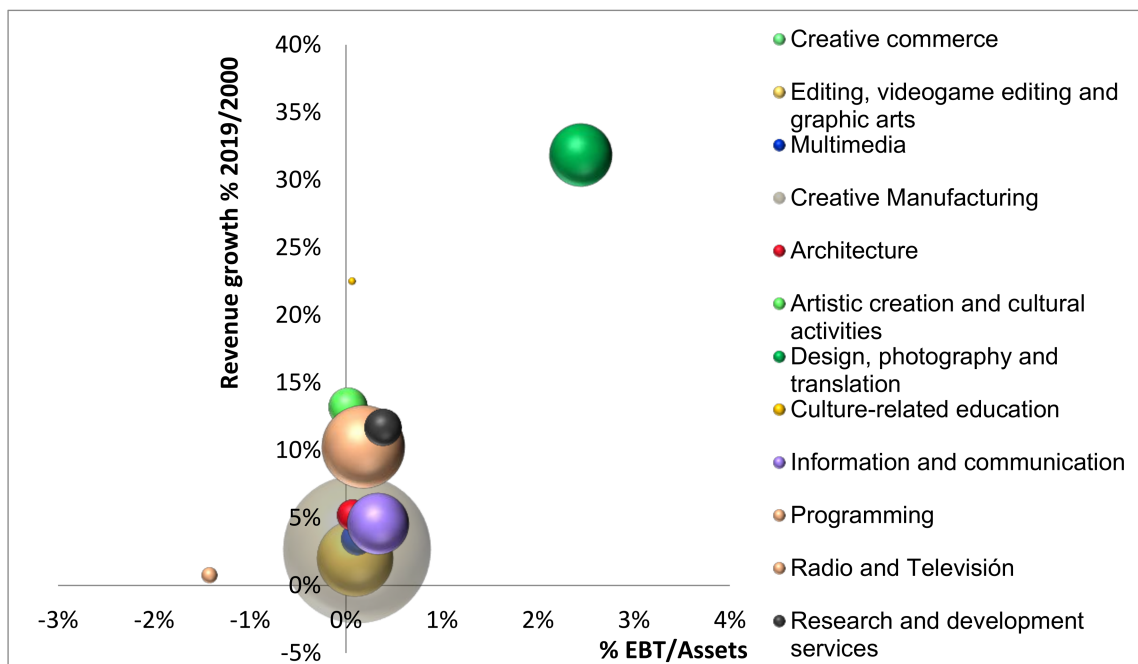


Figure 8. Growth and financial profitability in the Orange economy. Source: The authors base on SABI[®]. Vertical axis (% revenue growth 2019/2000); horizontal axis (% financial profitability 2019) and size of the figure (revenue thousands of euros in 2019).

5. Discussion and Conclusions

The Orange economy, which encompasses the creative industries and the cultural sector, has been the subject of growing interest in the last two decades. Since the beginning of the 21st century, the potential of cultural and creative activities to generate sustainable growth has been increasingly recognized [5,7,12,15,16,18,27], showing greater resilience than the rest of the economy during the 2008 crisis [11,44] and higher growth after the crisis [13]. Many countries have opted for the implementation of policies to promote cultural and creative industries because of their capacity to generate employment [14]. Although consideration of the potential of the Orange economy as an engine of sustainable growth is quite widespread, empirically proven results are lacking [14,38]. This paper contributes to alleviating the lack of empirical studies, focused on the role of the Orange economy in two Spanish regions, with the aim of providing knowledge about the possibilities of this sector as a driver of the economy and assessing its economic sustainability.

On the other hand, as it is a sector formed by activities that differ significantly in their characteristics, it is not enough with a global vision and it is necessary to delve into the different activities that conform it [17]. This study provides specific knowledge of the different activities and valuable information for the design and the implementation of economic policy measures.

From the analyses conducted, it can be concluded that the Orange economy, inclusive of the creative industries, has behaved as a dynamic and economically sustainable sector. After the crisis, Orange economic growth, in relative terms, has been higher than in the economy as a whole and the same can be said of the economic and the financial profitability rates.

The analyses carried out allow us to conclude that Hypothesis 1 is fulfilled. The Orange economy is growing faster than the economy as a whole and it is an engine of growth. Starting with the operating revenue in the Orange sector, at the beginning of the period, in 2000 it represented 2.6% of GDP; and, at the end of the period, in 2019, this share rose to 4.8%. The results support the assertion of an increase in the share of the creative economy in the GDP of developed countries [40]. For the two regions considered together, the Valencian

and the Galician regions, the growth rate of the Orange sector's operating revenue for the period (2000–2019) amounts to 244.94%, while the GDP growth reaches 87.6%. Therefore, the Orange sector's revenue growth rate is much higher than that of nominal GDP. The results of the study conducted are in line with those that point to the significant revenue generating capacity of creative industries and the cultural sector [7,14,39]. The growth is significant not only in revenues, since the number of enterprises is also increasing to a large extent. In 2000, in the regions of Valencia and Galicia, it amounted to 1555, and by the end of the period in 2019 the figure reached 8191 companies, an increase of 426.8%. As for the evolution of earning before taxes, if we compare the year 2000 with 2019, the variation rate is 1316.20%. The increase in earnings has been slightly more than 13 times the initial value, growing above the economy's average. Good growth rates are positive for society; generating greater capital income means greater tax collection, which has an impact on governments' budgetary capacity and, therefore, greater capacity to provide public goods and services. The results obtained support the affirmation of the Orange economy as an engine of economic growth [7,14,17,18,31,32].

Another aspect of interest is the sector's resilience, i.e., its ability to cope with or recover from adverse situations such as the 2008 crisis. As to the question, are cultural and creative activities resilient? The data from the study indicate that during the 2008 crisis there was an increase in revenue and in the number of companies. These results are consistent with other studies. The results support the resilience of Orange activities [11,41]. Other cases, such as the study conducted for the United States, indicate that the cultural economy did not experience decline during the recession [44].

The study shows that, on average, companies in the Orange sector, have achieved higher levels of profitability when compared to the levels achieved by the economy as a whole, since the 2008 crisis. The higher profitability achieved since the crisis are evident in that the Orange economy is a resilient sector. Thus, the analyses carried out confirm Hypothesis 2.

The activities included in the Orange economy are very varied. It is not enough to have a global picture of the sector's evolution, but it is necessary to delve deeper into the impact of the different activities on growth. The analyses carried out support the third hypothesis: it can be affirmed that there are differences in growth rates as well as in profitability levels, if we consider the different activities of the Orange sector, both by block and by branch of activity. For the period 2000–2019, the operating revenues of the different subsectors and activity branches of the Orange economy have grown above GDP growth, in all cases except for radio and television which suffered a decrease. The subsector with the highest growth rate is creative services (793.6%). At the activity branch level, design, photography, and translation (3182.6%); artistic creation and cultural activities (1222.2%); research and development services (1117.6%); and programming (1024.7%) stand out. If we analyze the center of the sector, the star activity is design, photography, and cultural activities, with the highest sales growth rate, the highest financial profitability, and a fourth position in terms of revenue. Contrary to the positive evolution of the design activity sector, creative manufacturing, which is the subsector with the highest weight, almost 50% of the turnover, is one of the least dynamic in terms of growth rates. In the case of programming activity, the growth is 924.7%, it has the third highest financial profitability (18.4%), and it represents the second place in revenue (14.3%).

In relation to the work limitations and future research lines, it should be noted that our analysis has an important limitation, we do not consider in the study those companies that due to their status as sole proprietors are not required to file accounts in the Mercantile Register and, therefore, do not appear in the SABI[®] database. This limitation is especially important in some activities as they involve numerous self-employed people [37]. Furthermore, we must delve deeper into the other two pillars of sustainability, the social pillar and the environmental pillar [45]. Once the sector's capacity to generate income, employment, and positive earnings is known, we must assess the sector's contribution to social sustainability by answering questions such as jobs generated, quality, salaries, and

income distribution. To what extent does the Orange economy generate quality jobs? What is the distribution of income like? We should not stop at merely assessing growth. It is necessary to go further and study the impact on the welfare of the population.

Of course, assessing sustainability requires a response to aspects related to environmental impact. It has often been considered that creative sectors and Cultural industries are not polluting, but there are many activities included in this term and it does not seem to be possible to generalize. There is a lack of empirical evidence in this regard.

Beyond the study scope of sustainable economic, social, and environmental development, another aspect to be taken into account is to extend the study territory to include large and medium-sized cities, since creative activities are mainly concentrated in cities and it seems that the city's size matters. As future research lines, it is proposed to extend the present investigation to other autonomous communities, as well as to carry out comparative studies with other countries.

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Appendix A

Table A1. Number of Orange economy companies classified by subgroups/branches of activity and communities.

Subgroup/Branches	C.A. Valencian	%	C.A. Galicia	%	Total General	%
Cultural Industries	1262	22.8%	740	27.8%	2002	24.4%
Creative commerce	242	4.4%	191	7.2%	433	5.3%
Editing, videogame editing and graphic arts	818	14.8%	411	15.5%	1,229	15.0%
Multimedia	202	3.7%	138	5.2%	340	4.2%
Creative Manufacturing	1426	25.8%	217	8.2%	1,643	20.1%
Creative manufacturing	1,426	25.8%	217	8.2%	1,643	20.1%
Creative Services	2845	51.4%	1701	64.0%	4546	55.5%
Architecture	503	9.1%	315	11.9%	818	10.0%
Artistic creation and cultural activities	212	3.8%	211	7.9%	423	5.2%
Design, photography and translation	310	5.6%	143	5.4%	453	5.5%
Culture-related education	21	0.4%	27	1.0%	48	0.6%
Information and communication	542	9.8%	332	12.5%	874	10.7%
Programming	1076	19.4%	585	22.0%	1661	20.3%
Radio and Television	66	1.2%	28	1.1%	94	1.1%
Research and development services	115	2.1%	60	2.3%	175	2.1%
Total general	5533	100.0%	2658	100.0%	8191	100.0%
%s/total	67.5%		32.5%			100.0%

Source: The authors base on SABI® (2021).

Table A2. Factorization principal component analysis (total variance explained).

Component	Initial Eigenvalues			Sums of Squared Extraction Charges		
	Total	% Variance	% Accumulated	Total	% Variance	% Accumulated
1	2353	39.21%	39.21%	2353	39.21%	39.21%
2	1138	18.97%	58.19%	1138	18.97%	58.19%
3	1060	17.67%	75.86%	1060	17.67%	75.86%

Source: Own elaboration results obtained from SABI[®] and processed in SPSS Statistics 28.

Table A3. Factor component matrix.

	Component		
	1	2	3
Equity_2019	0.903	−0.334	0.174
Assets_20019	0.861	−0.422	0.228
Revenues_2019	0.680	0.441	−0.282
Earnings_2019	0.575	0.590	−0.347
Fin_P_2019	0.017	0.354	0.658
Econ_P_2019	0.046	0.426	0.587

Extraction method: principal component analysis. Source: Own elaboration results obtained from SABI[®] and processed in SPSS Statistics 28.

Table A4. Orange economy revenues by subgroups and activity branches for the period 2000–2019 (thousands of euros at current prices).

Subgroup/Branches	2000	2005	2010	2015	2019
Cultural Industries	627,009	892,253	940,035	1,031,233	1,397,410
Creative commerce	42,847	82,907	102,641	111,456	161,187
Editing, videogame editing and graphic arts	529,517	741,586	744,362	797,367	1,047,141
Multimedia	54,645	67,760	93,032	122,410	189,082
Creative Manufacturing	1,468,285	1,810,522	2,204,743	3,135,191	3,914,265
Creative manufacturing	1,468,285	1,810,522	2,204,743	3,135,191	3,914,265
Creative Services	426,983	1,029,137	1,501,284	2,053,964	3,388,680
Architecture	33,400	143,150	118,744	92,088	174,439
Artistic creation and cultural activities	20,485	81,529	99,995	126,433	270,851
Design, photography and translation	22,433	48,755	308,684	538,335	713,960
Culture-related education	431	2848	3998	5480	9706
Information and communication	151,247	327,100	377,255	427,996	687,855
Programming	121,172	311,719	445,301	681,085	1,241,634
Radio and Television	56,807	60,489	50,252	37,301	44,115
Research and development services	21,008	53,547	97,055	145,246	246,120
Total	2,522,277	3,731,912	4,646,062	6,220,388	8,700,355
GDP Valencia + Galicia	96,182,387	138,197,990	157,968,726	156,777,350	180,445,213
% Total revenue/GDP	2.6%	2.7%	2.9%	4.0%	4.8%

Source: The authors base on SABI[®] and INE (2021).

Table A5. Evolution of the number of Orange economy companies for the period 2000–2019.

Subgroup/Branches	2000	2005	2010	2015	2019
Cultural Industries	565	869	1157	1489	2002
Creative commerce	87	188	254	328	433
Editing, videogame editing and graphic arts	434	591	755	954	1229
Multimedia	44	90	148	207	340
Creative Manufacturing	514	694	874	1211	1643
Creative manufacturing	514	694	874	1211	1643
Creative Services	476	1221	2111	3074	4546
Architecture	60	270	504	621	818
Artistic creation and cultural activities	32	75	169	266	423
Design, photography and translation	49	113	220	315	453
Culture-related education	2	10	14	29	48
Information and communication	123	252	402	582	874
Programming	163	426	678	1083	1661
Radio and Television	33	48	59	66	94
Research and development services	14	27	65	112	175
Total	1555	2784	4142	5774	8191

Source: The authors base on SABI®.

Table A6. Earnings before tax (EBT) of the Orange economy by subgroup and activity branch (thousands of euros at current prices).

Subgroup/Branches	2000	2005	2010	2015	2019
Cultural Industries	52,106	69,121	22,011	41,789	69,232
Creative commerce	282	−276	400	168	2337
Editing, videogame editing and graphic arts	44,451	68,159	24,044	34,343	52,711
Multimedia	7373	1238	−2433	7278	14,184
Creative Manufacturing	74,845	59,920	80,496	55,559	129,621
Creative manufacturing	74,845	59,920	80,496	55,559	129,621
Creative Services	−61,868	−53,271	146,930	339,558	722,856
Architecture	6521	37,996	2844	4513	14,557
Artistic creation and cultural activities	−28,732	−42,319	−56,060	−42,887	8049
Design, photography and translation	608	1371	239,140	347,278	440,448
Culture-related education	−4	36	12	−24	102
Information and communication	9078	24,488	24,638	61,118	115,793
Programming	5160	10,122	25,708	47,241	93,817
Radio and Television	−55,045	−87,114	−97,407	−86,931	−98,053
Research and development services	546	2149	8055	9250	148,143
Total general	65,083	75,770	249,437	436,906	921,709

Source: The authors base on SABI®.

Table A7. Spearman correlations of Orange economy.

	Revenues 2019		Earnings 2019
	Earnings_2019	Financial Profitability 2019	
Year 2005	0.486 **	0.028 **	0.494 **
Year 2010	0.457 **	0.068 **	0.120 **
Year 2019	0.496 **	0.164 **	0.506 **

Source: Own elaboration results obtained from SABI® and processed in SPSS Statistics 28. Note: ** represents sig $p < 0.01$.

Table A8. Spearman correlations by activity blocks in the orange economy.

	Revenues 2019		Earnings 2019
	Earnings_2019	Financial Profitability 2019	
Cultural industries	0.469 **	0.111 **	0.471 **
Creative manufacturing	0.546 **	0.100 **	0.404 **
Creative Services	0.526 **	0.220 **	0.551 **
Total	0.496 **	0.164 **	0.506 **

Source: Own elaboration results obtained from SABI[®] and processed in SPSS Statistics 28. Note: ** represents sig $p < 0.01$.

Table A9. % Economic profitability by subgroups and activity branches of the Orange economy.

Subgroup/Branches	2000	2005	2010	2015	2019
Cultural Industries	8.3%	7.6%	1.9%	3.6%	4.9%
Creative commerce	1.1%	−0.5%	0.5%	0.2%	2.0%
Editing, videogame editing and graphic arts	8.4%	9.6%	2.8%	3.9%	5.0%
Multimedia	10.4%	0.8%	−1.2%	4.0%	5.6%
Creative Manufacturing	9.1%	5.5%	5.0%	2.7%	5.2%
Creative manufacturing	9.1%	5.5%	5.0%	2.7%	5.2%
Creative Services	−7.0%	−3.4%	6.2%	10.9%	17.0%
Architecture	30.6%	21.0%	0.9%	1.5%	4.0%
Artistic creation and cultural activities	−5.0%	−5.6%	−6.6%	−4.4%	0.7%
Design, photography and translation	5.1%	4.2%	106.3%	76.0%	130.6%
Culture-related education	−3.5%	2.2%	0.5%	−0.7%	2.2%
Information and communication	10.8%	11.9%	7.8%	15.8%	18.7%
Programming	7.8%	5.9%	7.1%	7.7%	9.0%
Radio and Television	−56.2%	−71.3%	−65.8%	−80.7%	−77.2%
Research and development services	1.5%	2.2%	4.9%	3.4%	22.9%
Total general	2.8%	2.1%	4.9%	6.9%	11.3%
Spanish economy		7.5%	4.6%	4.6%	5.9%

Source: The authors base on SABI[®] and INE (2019).

Table A10. Financial profitability by subgroups and branches of the Orange economy for the period 2000–2019.

Subgroup/Branches	2000	2005	2010	2014	2019
Cultural Industries	21.7%	18.7%	4.5%	7.9%	10.0%
Creative commerce	4.8%	−2.3%	2.0%	0.8%	6.9%
Editing, videogame editing and graphic arts	21.9%	23.4%	6.2%	8.2%	9.8%
Multimedia	23.8%	1.8%	−2.8%	8.7%	11.4%
Creative Manufacturing	24.9%	13.6%	13.5%	6.4%	11.8%
Creative manufacturing	24.9%	13.6%	13.5%	6.4%	11.8%

Table A10. *Cont.*

Subgroup/Branches	2000	2005	2010	2014	2019
Creative Services	−65.7%	−8.9%	11.6%	22.7%	34.3%
Architecture	72.9%	36.6%	1.5%	2.5%	6.6%
Artistic creation and cultural activities	−180.4%	−15.1%	−11.0%	−9.8%	2.0%
Design, photography and translation	17.2%	15.5%	177.2%	134.7%	244.9%
Culture-related education	−16.7%	7.2%	2.3%	−5.3%	6.2%
Information and communication	37.0%	31.1%	20.4%	34.4%	33.8%
Programming	26.0%	17.7%	17.0%	19.9%	18.4%
Radio and Television	−1637.3%	−265.5%	−113.6%	−108.4%	−142.4%
Research and development services	3.0%	5.9%	9.6%	7.4%	38.5%
Total	10.3%	5.4%	10.6%	15.1%	23.6%
Spanish economy	13.2%	13.3%	8.4%	8.0%	9.1%

Source: The authors base on SABI[®] and INE (2021), Financial profitability is measured by dividing earnings before taxes by equity.

Table A11. Statistical significance analysis of average revenue by most relevant activity branches through Levene's test, Year 2019.

Branch	Programming	Editing, Videogame Editing	Design, Photography	Information and Communication
Creative Manufacturing	0.000 (***)	0.000 (***)	0.220	0.000 (***)
Programming	-	0.464	0.247	0.793
Editing, videogame editing		-	0.296	0.799
Design, photography			-	0.279

Source: The authors base on SABI[®] and SPSS. Note: *** sig represents $p < 0.001$.

Table A12. Total assets of the Orange economy ordered by subgroup and activity branch (thousands of euros at current prices).

Subgroup/Branches	2000	2005	2010	2015	2019
Cultural Industries	627,091	913,098	1,135,845	1,149,793	1,416,200
Creative commerce	24,757	52,671	76,538	85,133	118,804
Editing, videogame editing and graphic arts	531,447	708,752	864,037	884,600	1,044,859
Multimedia	70,887	151,675	195,270	180,060	252,537
Creative Manufacturing	825,119	1,092,561	1,625,511	2,085,129	2,498,963
Creative manufacturing	825,119	1,092,561	1,625,511	2,085,129	2,498,963
Creative Services	887,455	1,560,815	2,363,842	3,119,824	4,255,578
Architecture	21,283	180,912	301,453	300,242	364,832
Artistic creation and cultural activities	569,282	749,310	843,329	975,062	1,117,796
Design, photography and translation	11,982	32,676	224,959	456,645	337,288
Culture-related education	114	1654	2232	3657	4560
Information and communication	83,877	206,029	314,864	387,316	619,234
Programming	66,326	172,390	363,480	614,662	1,037,890
Radio and Television	98,012	122,175	148,089	107,702	127,041
Research and development services	36,579	95,669	165,436	274,538	646,937
Total general	2,339,665	3,566,474	5,125,198	6,354,746	8,170,741

Source: The authors base on SABI[®].

Table A13. Statistical significance analysis of economic profitability by most relevant branches through independent samples and Levene's test (2019).

	Programming			Editing, Videogame Editing			Design, Photography			Information		
	EBT	TA	EBT/TA	EBT	TA	EBT/TA	EBT	TA	EBT/TA	EBT	TA	EBT/TA
Creative Manufacturing	0.195	0.000 (***)	0.073	0.095	0.002 (**)	0.139	0.141	0.011 (**)	0.175	0.474	0.006 (**)	0.184
Programming	-	-	-	0.371	0.031 (*)	0.189	0.132	0.435	0.670	0.295	0.614	0.945
Editing, videogame				-	-	-	0.125	0.671	0.008 (**)	0.278	0.557	0.224
Design, photography							-	-	-	0.172	0.912	0.082

Source: The authors base on SABI[®], EBT (Earnings before taxes), TA (Total assets), EBT/TA (economic profitability). Note: * represents sig $p < 0.05$; ** represents sig $p < 0.01$; *** represents sig $p < 0.001$.

Table A14. Statistical significance analysis of financial profitability by most relevant activity branches through independent samples and Levene's test, Year 2019.

	Programming		Editing, Videogame Editing		Design, Photography and Translation		Information and Communication	
	Eq	EBT/Ep	Eq	EBT/Ep	Eq	EBT/Ep	Eq	EBT/Ep
Creative manufacturing	0.000 (***)	0.078	0.015 (*)	0.051	0.074	0.153	0.147	0.638
Programming	-	-	0.045 (*)	0.367	0.475	0.462	0.57	0.196
Editing, videogame editing			-	-	0.820	0.890	0.868	0.156
Design, photography					-	-	0.985	0.148

Source: The authors base on SABI[®], Equity (Ep) and financial profitability (Earnings before taxes/ Equity). Note: * represents sig $p < 0.05$; ** represents sig $p < 0.01$; *** represents sig $p < 0.001$.

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