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Exploring European Cultural Goods Trade: A Multidimensional Perspective

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Abstract

The increasing interest in culture and related industries has emerged as part of a new approach as regards national and regional development. Cultural and creative industries are considered to incorporate strong dynamics and potential for participatory and inclusive development. Therefore, the promotion of effective policies fostering the development and growth of the particular industries has social and economic benefits for broad groups of stakeholders. The trade of cultural goods is one of the dimensions of this debate. This paper demonstrates the use of Multidimensional Data Analysis methods in revealing latent groups of European countries trading cultural goods over a period of fourteen years (2002-2015). The methods of Multiple Correspondence Analysis (MCA) and Hierarchical Cluster Analysis (HC) are applied on a multivariate matrix that takes into account not only imports and exports of such goods, but in a supplementary way, basic economic and educational variables, in order to detect and explore relationships among them. Furthermore, cluster analysis on MCA results is used to identify all groups of country-years sharing similar characteristics.

Keywords: Multidimensional Data Analysis, European Union, culture, cultural goods, cultural industries, creative industries

1. Introduction

The socioeconomic transformation that takes place in the global environment, among others, changes the approach of national and regional development. The increased interest in culture and the related industries has emerged as part of this new approach and has introduced cultural policies in the policy-making agenda of national and international entities. Cultural and creative industries are considered vital for the promotion of participatory and inclusive development due to their unique dynamism and potential. The inclusion of actions fostering the integration of the particular industries in the broader policy planning is founded on their ability to enhance the social values and to offer significant social and economic benefits to broad groups of stakeholders. The trade of cultural goods is one of the dimensions of this debate.

This paper demonstrates the use of Multidimensional Data Analysis methods (Bartholomew et al., 2008) in revealing latent groups of European countries trading cultural goods over a period of fourteen years (2002-2015). The analysis focuses on ten European countries (Cyprus, France, Germany, Greece, Italy, Malta, Portugal, Slovenia, Spain and United Kingdom). By implementing the specific methodology the paper attempts to indicate interesting particularities that can support the design of better targeted and more effective cultural policy interventions in the countries. The methods of Multiple Correspondence Analysis (MCA) and Hierarchical Cluster Analysis (HC) are applied on a multivariate matrix that takes into account not only imports and exports of such goods, but in a supplementary way, basic economic and educational variables, in order to detect and explore relationships among them. Furthermore, cluster analysis on MCA results is used to identify all groups of country-years sharing similar characteristics.

2. Definitions and Theoretical Framework

The definition of the terms "culture", "cultural goods", "cultural industries" and "creative industries" has been a long and difficult process due to their multidimensional nature and the arising ideological concerns.

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UNESCO defines "*culture*" as "the set of distinctive spiritual, material, intellectual and emotional features of society or a social group that encompasses not only art and literature, but lifestyles, ways of living together, value systems, traditions and beliefs" (UNESCO, 2001).

The term "cultural goods" describes the "products of artistic creativity that convey artistic, symbolic and aesthetic values; examples are antiques, works of art, books, newspapers, photos, films and music. The category includes CDs, DVDs and video games and consoles, as media enabling access to cultural content. It also includes musical instruments, which are not cultural goods in themselves, but represent means of artistic expression" (Eurostat, 2016, 98). Cultural goods are characterized by great heterogeneity as regards their diverse content and the share of the member states in their production and consumption. This heterogeneity has a significant impact on the countries' performance in the import and export trade of cultural goods.

The terms "cultural industries" and "creative industries" are used almost interchangeably in spite of their differences in the content and the adjustments of their use depending on the symbolic and the pragmatic objectives they are called to serve. Cultural and creative industries bridge culture with the economic activities of countries directly and have been at the epicenter of attention regarding their potential contribution to the broader development and growth. UNESCO defines them as "sectors of organized activity whose principal purpose is the production or reproduction, promotion, distribution and/or commercialization of goods, services and activities of a cultural, artistic or heritage-related nature" (Oxford Economics, 2014, 14; UNESCO official website [creative industries]).

The term "cultural industries" refers to those industries which produce tangible or intangible artistic and creative outputs, and which are able to exploit the existing cultural assets and the production of knowledge-based goods and services (both traditional and contemporary) in order to create wealth and to generate income. What cultural industries have in common is that they all use creativity, cultural knowledge and intellectual property to produce products and services with social and cultural meaning (UNESCO, 2007, 11).

The term "creative industries" was introduced as a distinct term in the end of the 20th century when the interest in the cultural sector began to expand in new fields. However, the definition of creative industries is not easy, because the type of activities that are included in them is constantly changing (UNESCO, 1982, 32-33; Roodhouse, 2006, 24-26). It could be argued that the term is associated with the focus on the economic activities through which cultural goods and services are created, reproduced, stored and promoted in the market, distributed and sold to the consumers at large scale; therefore it attributes greater emphasis on the economic results than on cultural development, regardless of the fact that more noble causes may be also served through their development (UNESCO, 1982, 21, 99-101; Throsby, 2001, 111). They refer to those activities which derive from the creativity, the individual skills and the talent of people and have the potential to create wealth and employment by generating and exploiting the intellectual property (DCMS, 2001, 5). Music, publishing, cinema and broadcasting, visual arts, crafting, advertisement, architecture, design and fashion design, art and antiques markets, games and the relevant software are included in this part of the economic activity and incorporate a strong potential (Towse, 2010, 16-17; Avdikos, 2014, 17-19).

In general, the notion of "cultural industries" places greater emphasis on the industries whose inspiration derives from heritage, traditional knowledge and the artistic elements of creativity. On the contrary, the notion of "creative industries" focuses on the individual and his/her creativity, innovation, skill and talent in the exploitation of intellectual property (UNESCO, 2007, 11). Cultural industries mainly focus on symbolic goods, whose primary economic value derives from their cultural value. They include what have been called the 'classical' cultural industries (broadcast media, film, publishing, recorded music, design, architecture, new media) and the 'traditional arts' (visual art, crafts, theatre, music theatre, concerts and performance, literature, museums and galleries). There are certainly divisions between these two categories, but a line between 'art' and 'commerce' is ideological and not analytical (O' Connor, 2000, 19). Cultural and creative industries include a large variety of activities: advertising; architecture; crafts; designer furniture; fashion clothing; film, video and other audiovisual production; graphic design; educational and leisure software; live and recorded music; performing arts and entertainment; television, radio and internet broadcasting; visual arts and antiques; and writing and publishing (UNESCO, 2007, 11). The aspirations regarding the contribution of cultural and creative industries to growth and increased employment led to their impressive development during the last decades and to the encouragement of more actors to become involved in such activities.

The interest in culture as a field of policy interventions with great economic and social importance has increased especially during the last years and the development of cultural and creative industries has been integrated in the countries' developmental agenda (Heilbrun & Gray, 2001; Throsby, 2001; Fernández, 2008). The interaction between culture and other fields of human action has always drawn the attention of research and policy making. Its significant economic impact and contribution are broadly recognized designating culture as a potential instrument for the enhancement of creativity and innovation, the development of the European economies and job creation (Commission Communication 2012/COM/537/final/EU; Tom Fleming Creative Consultancy, 2015).

The relation between culture and education seems to be multilevel and complex due to their ability to influence and transform the perceptions, the attitudes and the behavior of individuals to a great extent (Bennett & Silva, 2006; Deardorff, 2006). The skills and competences that are required by individuals during their lifetime are constantly changing. Lifelong learning has been designated as an important learning stream through which people can update their skills and competences in order to be able to successfully correspond to their aims for personal, social and economic development, whereas significant benefits derive from lifelong learning participation and skilled workforce creation for businesses (Morem, 2007; Cedefop, 2008; 2011a; 2011b; 2011c; European Commission, 2013; OECD, 2016).

Employment has also been a priority issue in the debate regarding the future prospects for development of countries, because it is closely associated with the dynamism of the economies and has the ability to enhance welfare. On the contrary, the high levels of unemployment undermine the countries' potential by depriving them of valuable human resources and limiting their ability to adapt to the global socioeconomic transformations (Ahn, García & Jimeno, 2004; OECD, 2011; ILO, 2012). By limiting the employment opportunities of individuals, unemployment not only endangers their social and professional integration, but also aggravates skill erosion and human capital depreciation; thus, it results in serious undesired consequences for the workforce and the labor market functioning, for the economy's efficiency and social cohesion (Sen, 1997; Borjas, 2008; Cedefop, 2010; Wisman, 2010; ILO, 2013).

However, the success in a country's development is depicted in its ability to perform well in different aspects of human development that go beyond its economic achievements. The United Nations created the Human Development Index (HDI) in order to demonstrate that people and their capabilities should be used as assessment criteria for the development of a country, and not economic growth alone. The indicator is a summary measure of average achievement in key dimensions of human development: life expectancy at birth (with reference to the ability for a long and healthy life); mean of years of schooling for adults 25 years and more, and expected years of schooling for children of school entering age (with reference to people being knowledgeable); and gross national income per capita (with reference to the ability to have a decent standard of living). The use of the HDI helps to the monitoring of the progress in important dimensions of human development in both developed and developing countries and, therefore, it can contribute to the introduction of sustainable and effective solutions (Jahan, 2016).

3. Culture in the European Policy Context

Culture is repeatedly designated as an important component of societies due to its ability to influence –often in a catalytic way– their social and economic structure and development, as well as their position and their role in the global context. At different times the particular interests of a country within the broader context define the emphasis of its policies regarding culture towards more socially or economically oriented decisions. The European Union comprises countries with long cultural traditions; therefore, it is very important for Europe to understand the potential of all forms of culture and to undertake organized actions in order to make the most out of its cultural expression and creativity. Over the years, the participation of the European Union in the consultations and the decision-making of international organizations helped to the formation of its own vision regarding culture. The role of the United Nations, the UNESCO and the Council of Europe has been significantly influential.

The United Nations have made extensive references to the importance of culture for social and economic purposes and their interventions exercise a symbolic power and motivation on the policy planning of most countries. United Nations resolutions give special emphasis on the role of culture for sustainable development for local communities, peoples and nations, whereas they connect it to the ability of countries to combat poverty and to enhance their economic growth. Furthermore, culture constitutes an integral component of human identity; thus, it contributes to people's innovation and creativity and to the societies' willingness and ability to participate in the pursuit of the Millennium Development Goals, which were replaced by the Sustainable Development Goals in 2015. As regards its economic dimension, culture can contribute to the increase of employment and income through the development of cultural industries, the rise in cultural tourism and the improvement of local traditional know-how. For this reason the main development stakeholders are encouraged to include culture in their developmental planning, to offer targeted support to cultural and creative industries and to the training of professionals, and to raise awareness of the overall importance of culture for sustainable development (United Nations General Assembly Resolution 65/166; United Nations General Assembly Resolution C.2/68/L.69). Within the same scope in 2013 UNESCO reaffirmed the importance of culture as a driver and an enabler for sustainable development. It called for its integration in the development policies and programs in order to achieve poverty reduction and inclusive economic development, and for the mobilization of cultural understanding to foster peace and reconciliation both in and among countries (UNESCO, 2013).

The contribution of the Council of Europe to cultural policies has been long and very important. So, its impact on the European initiatives does not come as a surprise. In 2005 the Council of Europe launched the "Framework Convention on the value of cultural heritage for society" (Council of Europe, 2005), which aspires

to incite a change in the perceptions and the attitudes of European peoples with regard to the multidimensional role exercised by culture in modern societies. The Framework Convention focuses on the protection of cultural resources, the promotion of cultural identity, the respect for diversity and the encouragement of inter-cultural dialogue. The influence by the United Nations' aforementioned message is evident. The Council of Europe underlines the significance of culture and of the relevant policies and includes the economic dimension in its approach. It acknowledges the potential of culture for sustainable economic development, but it highlights the need for sensible management of Europe's cultural heritage and resources. It is necessary for all stakeholders to ensure the conservation of cultural values and the implementation of interventions distinguishing for their high-quality as regards the regulations and the techniques used, and the professionals, the businesses and the institutions involved (Council of Europe, 2005, art. 9-10).

As culture gradually gained in importance, the European Union included cultural policies in its agenda and multiplied the initiatives with a focus on the different dimensions of culture. Culture had already been mentioned in the Treaties of the European Union (Treaty on European Union, 1992, art. 128; Treaty of Amsterdam, 1997, art. 128, §4; Treaty of Lisbon, 2007, preamble and art. 2, §3; Treaty on the Functioning of the European Union, 2012, art. 167) before the European authorities entered a period of proactive policy planning in the field of culture and the relevant industries; however, the primary interest of the European Union according to the Treaties was the protection and the dissemination of the European cultural heritage and diversity and the fostering of cultural creation and exchanges, while there were no explicit references to its economic dimension.

The increased institutional interest in the cultural and creative industries and in the mobilization of human and financial resources with such focus all over the world incited the European Union to step up its pace. In 2007 the European Commission identified a strong consensus among member states for a "European Agenda for Culture" that would take into consideration the previous experiences and would reinforce the ongoing activities by focusing on a set of objectives: promotion of cultural diversity and intercultural dialogue; promotion of culture as a catalyst for creativity in the framework of the Lisbon Strategy for growth and jobs; promotion of culture as a vital element in the Union's international relations (Commission Communication 2007/COM/242/final/EC).

It was not long before the Council of the European Union realized the Commission's suggestion by publishing the "European Agenda for Culture" (Council of the European Union Resolution 2007/C 287/01/EC). Its primary aims were to utilize all available resources and previous experience, and to recognize and make the most out of the arising opportunities in the fields of cultural and creative industries in order to achieve both social and economic objectives. The Agenda endorsed the participation of broad groups of stakeholders in various activities related to culture and regarded it as an instrument for the development of greater creativity and innovation, of deeper cultural understanding and empathy. The "European Agenda for Culture" set five priority areas and determined the open method of coordination as appropriate tool for the implementation of cultural policies: improvement of the conditions of mobility for the professionals in the cultural field; promotion of the accessibility of culture through various streams of action (promotion of cultural heritage, multilingualism, digitization, tourism, education and mobility of collections); development of databases and proper methodologies; enhancement of the potential of cultural and creative industries, especially of SMEs; promotion and implementation of the UNESCO "Convention on the protection and promotion of the diversity of cultural expressions" (Council of the European Union Resolution 2007/C/287/01/EC, Annex).

The "Green Paper on unlocking the potential of cultural and creative industries" was part of the European Agenda for Culture. It was the first official document to focus on the necessary interventions regarding the support to the Cultural and Creative Industries (CCIs), which have an important contribution to the efforts of Europe to respond to global challenges and to improve its performance in competitiveness and innovation. The Green Paper makes reference to the direct economic and social contribution of CCIs, mentions the existence of significant positive spillover effects that have to be strengthened, and indicates the right enablers for their development (European Commission, 2010).

Furthermore, the European Union has established five subsequent Work Plans for Culture during the periods 2002-2004, 2005-2007, 2008-2010, 2011-2014 and 2015-2018. Each one of them reaffirms the decision of the European authorities to invest in cultural policies and programs, determines the priority areas for action and articulates the objectives that have to be achieved. The Work Plans for Culture include various activities for the promotion of cultural policies and offer methodological support for their implementation. Similarly, the Creative Europe program (2014-2020) continues the tradition of culture-oriented policy and programming interventions with both economic and socio-cultural aims (European Parliament and Council of the European Union Regulation No 1295/2013).

An additional indication of the importance of culture in general and especially of the development of cultural and creative industries can be traced in the inclusion of cultural cooperation in the external relations of the European Union (European Commission, 2014; Commission Joint Communication 2016/JOIN/29/final/EU), while their role in the sustainable socioeconomic development, the peaceful relations between communities or countries and the cooperation within the EU and with third countries is emphatically designated (Commission Communication 2012/COM/537/final/EU; Commission Joint Communication 2016/JOIN/29/final/EU).

Finally, in order to proactively support its initiatives and to effectively mobilize its citizens the European Union officially declared the "European Year of Intercultural Dialogue" for 2008 (European Parliament and Council of the European Union Decision No 1983/2006/EC), the "Year of Creativity and Innovation" for 2009 (European Parliament and Council of the European Union Decision No 1350/2008/EC) and the "European Year of Cultural Heritage" for 2018 (European Parliament and Council of the European Union Decision No 2017/864/EU). During each celebration year the volume of activity in the cultural and the creative sector is expected to increase significantly, to disseminate creativity in different forms and to become an inspirational model for other actors to engage in culture-oriented plans.

4. Economic Overview of Countries of Reference

By using Multidimensional Data Analysis methods the paper explores their capacity of revealing latent groups of European countries trading cultural goods over a period of fourteen years (2002-2015). Ten countries comprise the paper's group of reference: Cyprus, France, Germany, Greece, Italy, Malta, Portugal, Slovenia, Spain and the United Kingdom. All countries belong to the European Union and most of them are Mediterranean countries. Also, the particular group of European countries allows interesting comparisons regarding their performance considering the strength (or the weakness) of their economies during the period of reference.

The financial crisis of 2008 seems to have a significant impact on all countries. Nevertheless, their economic capacity and dynamism determined their ability (or inability) to successfully confront the consequences of the crisis and to reignite growth. An overview of the development of the countries' performance in key data indicators in specific years is useful for the better understanding of their achievements during the period of reference (2002-2015) in the targeted areas of interest. Besides the years 2002 and 2015, which are the first and the last year of the period of reference respectively, 2009 is the first year when the signs of the economic crisis' severity and impact became apparent, and 2012 is considered to be the peak of the crisis for most European countries (Table 1).

Table 1. Key economic indicators of countries of reference

	1 able 1. Key economic indicators of countries of reference											
	Year	Cyprus	France	Germany	Greece	Italy	Malta	Portugal	Slovenia	Spain	United Kingdom	
	2002	0.77	61.81	82.49	10.90	57.06	0.40	10.42	1.99	41.43	59.37	
Population	2009	1.09	64.70	81.90	11.11	59.10	0.41	10.57	2.04	46.36	62.28	
(million) (a)	2012	1.14	65.66	80.43	11.05	59.54	0.42	10.51	2.06	46.77	63.70	
	2015	1.16	66.62	81.69	10.82	60.73	0.43	10.36	2.06	46.45	65.13	
	2002	17.618	1,500	2,079	153.831	1,267	4.69	134.229	23.564	705.146	1,758	
GDP	2009	25.943	2,694	3,418	330	2,185	8.528	243.746	50.245	1,499	2,367	
(US\$ billion) (a)	2012	25.012	2,681	3,544	245.671	2,073	9.199	216.368	46.258	1,336	2,646	
	2015	19.56	2,434	3,364	194.86	1,825	10.287	199.082	42.777	1,193	2,861	
CDD 1	2002	3.399	1.118	0	3.923	0.249	2.983	0.769	3.836	2.88	2.397	
GDP annual	2009	-1.772	-2.941	-5.619	-4.301	-5.482	-2.462	-2.978	-7.797	-3.574	-4.328	
growth rate (%)	2012	-3.158	0.183	0.492	-7.3	-2.819	2.581	-4.028	-2.689	-2.93	1.313	
` ,	2015	1.679	1.067	1.721	-0.219	0.783	7.427	1.594	2.317	3.205	2.194	
	2002	16,372.3	24,275.3	25,205.2	14,110.3	22,196.5	11,843.9	12,882.3	11,814.1	17,019.5	29,603.5	
GDP per capita	2009	32,105.8	41,631.1	41,732.7	29,711	36,976.9	20,675.6	23,064	24,633.8	32,333.5	38,010.1	
$(\widehat{\mathbf{US}})^{(a)}$	2012	28,951.2	40,838	44,065.3	22,242.7	34,814.1	21,930.8	20,577.4	22,486.5	28,562.3	41,538.3	
	2015	23,075.1	36,526.8	41,176.9	18,007.8	30,049.2	23,819.5	19,220	20,729.9	25,683.9	43,929.7	
Dublic dob4	2002	59.7	60	59.4	104.9	101.9	63.2	56.2	27.3	51.3	34.7	
Public debt (% of GDP) (b)	2009	53.4	78.9	72.6	126.7	112.5	67.8	83.6	34.6	52.8	64.5	
(70 OI GDF)	2012	79.3	89.5	79.9	159.6	123.4	68.1	126.2	53.9	85.7	85.1	
	2015	107.5	95.6	71.2	177.4	132.1	60.6	129.0	83.1	99.8	89	
Global	2002	38	26	13	35	41	19	25	28	23	15	
Competitiveness	2009	40	15	5	83	48	50	46	45	42	12	
ranking (c)	2012	58	23	4	91	49	41	51	62	35	10	
	2015	83	21	5	86	44	40	46	56	32	7	
Sources: (a) World Bank; (b) Eurostat; (c) World Economic Forum												

Before the economic crisis the countries' financial outlook was very optimistic as the GDP and the GDP per capita had an impressive increase. The eruption of the crisis in 2008 had a negative impact on European economies resulting in a dramatic decrease of the economic activity and, consequently, of the GDP and the GDP per capita. Also, within a six year period the countries' public debt grew to unprecedented levels and its expression as a percentage of the national GDP presented a steep increase compared to its levels before the crisis. Except Germany and Malta, which actually managed to decrease the public debt/GDP ratio, all the other countries experienced great challenges that are depicted in the increase of the ratio; Cyprus (+101.3%), France (+21.2%), Greece (+40%), Italy (+17.4%), Portugal (+54.3%), Slovenia (+140.2%); Spain (+89%) and United Kingdom (+38%). Furthermore, since 2002 six of the countries saw their global competitiveness ranking deteriorating, whereas France, Germany, Italy and the United Kingdom improved or managed to maintain almost the same position; Cyprus lost 45 positions, Greece 51, Malta 21, Portugal 21, Slovenia 28 and Spain 9.

In addition, the deterioration of their economic capability and their inability to confront chronic structural deficiencies forced three of the countries of reference to enter an Economic Adjustment Programme; Greece (with three consecutive programs, 2010-2012, 2012-2015 and 2015-2018), Portugal (with one program, 2011-2014) and Cyprus (with one program, 2013-2016) received the necessary financial support and know-how from the European authorities and the International Monetary Fund. However, the interventions often put the countries' social and economic stability to the test.

5. Methodology and Findings

5.1. Variables and Data

The analysis focuses on ten European countries that relate as members of the European Union and present differentiated performance in their import and export cultural goods trade (Table 2).

Table 2: Countries Examined

Table 2: Countries Examined									
Cyprus	CY								
France	FR								
Germany	DE								
Greece	GR								
Italy	IT								
Malta	MT								
Portugal	PT								
Slovenia	SI								
Spain	ES								
United Kingdom	UK								

The analysis used indicators for the period between 2002 and 2015. The particular focus combines the trade of cultural goods with basic economic and educational variables, in order to detect and explore relationships among them.

Table 3. Variables

Variable abbreviation	Variable description	Source of data	
IM	Import trade in cultural goods (percentage of total trade with all countries of the world)	Eurostat	bles
EX	Export trade in cultural goods (percentage of total trade with all countries of the world)	Eurostat	Varia
ED	Adult Lifelong Learning (participation rate in education and training, last 4 weeks) (25-64 years) (%)	Eurostat	Active Variables
HD	Human Development Index ranking	United Nations	
СО	Position in the Global Competitiveness Index	World Economic Forum	Supplementary Variables
GD	GDP (Gross Domestic Product)	World Bank	ople 7 ar
GG	GDP Growth	Eurostat	Ins
UN	Unemployment rates (total population, 15-64 years) (%)	Eurostat	

The Multidimensional Data Analysis methods were implemented by using four of the variables (IM, EX, ED, HD). The variables that refer to imports (IM) and exports (EX) of cultural goods in the particular countries are at the epicenter of attention of this paper. Indicators IM and EX describe the levels of imports and exports of cultural goods respectively in each country of reference as percentage of their total national import and export trade. International trade in cultural goods is one of the indicators enabling to measure the relative impact of culture in the economy and allowing the assessment of the weight and contribution of cultural goods to total external trade. The two indicators IM and EX focus on cultural goods, which have gradually attracted increased interest due to their multilevel advantages. According to Eurostat these indicators actually depict the trade of cultural products that have a physical dimension; antiques and collectors' items, works of art (paintings, sculptures, engravings, designs), photographic plates and film, musical instruments, fabrics (knitted or crocheted fabrics, embroidery and tapestries), books, newspapers, journals and periodicals, cinematography films, video games and consoles, recordings (CDs, DVDs and gramophone records, etc.), maps, architectural plans and drawings. An overview of the increased interest in products that incorporate cultural inspiration and creativity can be seen in Table 4, which shows the import and export cultural trade of the European Union in years 2008 and 2015, as well as the average annual growth (AAGR). The overall value of the export trade increased and currently outweighs that of the import trade, thus benefiting the European economy. However, a more detailed analysis reveals that specific categories of cultural products lost part of their export dynamism and, therefore, should be supported with targeted policy interventions.

Table 4. Extra-EU trade in cultural goods, EU-28 (2008 and 2015)

		200	8		201	AAGR 2008–2015				
	Exports	Imports	Balance	Ratio Exp/Imp	Exports	Imports	Balance	Ratio Exp/Imp	Exports	Imports
	(m	illion EU	TR)		(mi	illion EU	JR)		(9	%)
Total	10,535	12,603	-2,068	0.8	14,926	12,14	2,786	1.2	5.1	-0,5
Works of art	3,336	2,031	1,306	1.6	7,343	2,686	4,657	2.7	11.9	4,1
Books	2,497	1,996	501	1.3	2,766	1,941	825	1.4	1.5	-0.4
Antiques	999	789	210	1.3	1,643	1,437	206	1.1	7.4	8.9
CDs, DVDs and gramophone records	940	430	510	2.2	790	180	611	4.4	-2.4	-11.7
Newspapers, journals and periodicals	879	184	696	4.8	638	159	480	4.0	-4.5	-2.1
Knitted or crocheted fabrics, embroidery and tapestries	630	488	142	1.3	570	748	-178	0.8	-1.4	6.3
Musical instruments	431	1,05	-619	0.4	547	1,065	-519	0.5	3.5	0.2
Cinematography films, video games and consoles	494	5,567	-5,073	0.1	396	3,801	-3,405	0.1	-3.1	-5.3

Photographic plates and film	57	48	9	1.2	92	98	-6	0.9	7.2	10.9
Maps	58	17	41	3.4	72	20	52	3.6	3.0	2.5
Architectural plans/drawings	214	4	211	55.5	69	5	64	13.6	- 14.9	4.1
Source: Eurostat										

The indicator ED shows the percentage of adults 25-64 years old who participated in education and training activities –either formal or non formal– during the four weeks preceding the interview for the collection of the statistical data. Therefore, the indicator depicts the levels of lifelong learning participation in each country and is very important for the monitoring of the overall performance of the European countries regarding learning. For this reason it has been included in the European Union policy planning as a means of better monitoring and identifying the challenges in the field of learning and skill development; the indicator is one of the five "European benchmarks" that were set by the revised strategic framework for European cooperation in education and training for the period 2010-2020 (Council of the European Union Conclusions 2009/C/119/02/EC, Annex I), while it is also being used by the "Europe 2020" Strategy, which has set the average European Union target for 2020 to 15%.

The indicator HD represents the ranking of each country in the Human Development Index (HDI). It has been created by the United Nations in order to demonstrate the levels of human development in each country and can serve as a sign regarding the efficiency of the promoted policies concerning the basics of its people's quality of life.

Besides the four aforementioned indicators, four additional indicators were used without being included in the implementation of the Multidimensional Data Analysis for the creation of factors. The indicators CO, GD and GG offer a general overview of the economic situation of each country and help to the better understanding of the orientation and the dynamism of their economic activities. The indicator UN represents the percentage of total unemployment in each country during the period of reference and is an additional indication of the situation in the country's economic environment and of the levels of success of the employment policies.

The panel data analyzed has eight (8) columns, each corresponding to one variable (see Table 3) and 140 rows, fourteen (14) for each one of the examined ten (10) countries (see Table 2). Thus the homogenized table is of the following form (Figure 1):

COUNTRY -YEAR	IM	EX	ED	HD	со	GD	GG	UN
CY02	1,3	1,2	3,7	0,82	38	16372,3	3,4	3,4
CY03	1,4	0,7	2,7	0,85	26	24275,3	1,1	8,7
CY04	1,3	0,8	5,8	0,87	13	25205,2	0	8,6
CY05	1,2	0,9	1,1	0,82	35	14110,3	3,9	10
:	:	:	:	:	:	:	:	:
UK14	1	0,4	9,9	0,88	32	25683,9	2,3	22
UK15	1	2,4	16	0,91	7	43929,7	2,2	5,4

10 Countries
x14 Years

140 CountriesYears

Figure 1: Homogenized Data Table

5.2. Methodology

Previous experience in the implementation of the Multidimensional Data Analysis methodology in the fields of employment, education and lifelong learning with reference to European Union countries showed that the particular methodology has great potential (Koutsoupias & Boutsiouki, 2017); it allows researchers to explore the impact of the interaction of multiple factors on broad policy fields and to come to interesting conclusions that can contribute to policy understanding and reform in various target areas. The main objective of the Multidimensional Data Analysis methods in use is to transform the available data table into vivid graphical forms, easily understandable and interpretable, with the aid of tools (such as interpretation tables), also provided by the methods.

The first method in use is Multiple Correspondence Analysis - MCA (Benzecri, 1992; Greenecre & Blasius, 2006; Le Roux, 2010). The main advantages of utilizing MCA are its straightforwardness and the intelligible

depictions of categorical data in a shared-space so as both variables (columns) and objects (rows) relationships are explorable based on a squared distance model. Consequently, MCA reveals relationships not easily detected in pair-wise comparisons of variables and demonstrates how related variables and objects are plotted adjacently, hence providing information relating to similarities and differences among them.

The second method applied is Hierarchical Clustering- HC (Benzécri et al., 1973) using euclidian distances and Ward's minimum variance criterion (Murtagh & Legendre, 2014), as applied on factorial components (Lê et al., 2008). The HC algorithm examines the differences among objects (rows) to be grouped together. A form of difference corresponds to the analyzed phenomenon and the nature of data. The method's results, among others, include a dendrogram (binary clustering tree) showing the progressive clustering of objects, providing information about the appropriate number of latent groups in the data. At this phase a certain partition of the tree is selected depending upon either user-defined criteria or more objective limitations.

5.3. Findings

The framework of analysis refers to the recoding of the four variables into 3-class quartile-based categorical variables. Each variable has been allocated in three categories: (h)igh - (m)edium - (s)mall (Figure 2). High category corresponds to the upper 25% of the variables' values, medium to the mid 50% and small to the lower 25% of the variables' values.

Thus, all variables are transformed to categorical, a necessary prerequisite for applying MCA (Husson et al., 2017).

The main result of the method is the first biplot (Figure 2), which incorporates the 40.5% of the total inertia in the data and corresponds to the plane formed by the two first MCA axes.

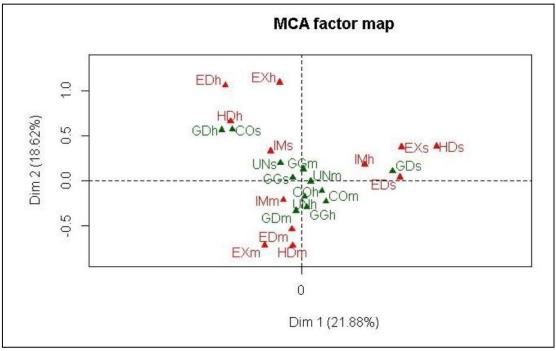


Figure 2. MCA factor map

When focusing on the first factorial axis (horizontally, with 21.88% of the total inertia), we see that the high performance in lifelong learning, in exports and imports of cultural goods and in HDI, as well as the small performance in exports of cultural goods, are in contrast to the medium performance in imports and exports, education and HDI, and to the low performance in education. Also, the high performance variables coexist with low competitiveness and unemployment, with high and low GDP, and with medium and low GDP growth. On the other hand, the medium performance variables coexist with high performance in GDP growth, with high and medium performance in competitiveness and unemployment, and medium in GDP (Table 5a).

If the focus is placed on the second factorial axis (vertically, 18.62% of the total inertia), the high and medium performance in education, cultural goods exports and HDI, and the medium and low performance in imports of cultural goods are in contrast to the low performance in education, exports and HDI, as well as to high imports of cultural goods. The first group of variables coexists with low values of competitiveness, GDP growth and unemployment, and with high and medium values of GDP. The second group of variables coexists with high and

medium performance in GDP growth, competitiveness and unemployment, and with low performance in GDP (Table 5b).

Table 5. Variables against the axes

Table 5a. Against t	the 1st factorial axis		Table 5b. Against t	he 2nd factorial axis
Variables	Variables Coexisting		Variables	Coexisting
by performance	variables		by performance	variables
IMh, IMs	GDh, GDs		IMm, IMs	GDh, GDm
EXh, EXs	GGm, GGs		EXh, EXm	GGs
EDh	Cos		EDh, EDm	Cos
HDh, HDs	UNs		HDh, HDm	UNs
IMm	GGh		IMh	GDs
EXm	COh, Com		EXs	GGh, GGm
EDm, EDs	UNh, UNm		EDs	COh, COm
HDm			HDs	Unh, UNm

The method provides the capability of creating a more comprehensive view of the first biplot, which actually incorporates both variable and object (country-year) locations (Figure 3). The picture is then clarified further, since, all the available information, in the form of the examined variables and country-years, is available for further investigation.

6. Conclusions

The paper recognizes the need for innovative research approaches of policy fields with social and economic interest. For this reason, it used the Multidimensional Data Analysis methods in order to determine their ability to explore potential interactions among multiple factors in different contexts, which usually remain undetected and thus unavailable to researchers and policy makers. The primary aim was to contribute to the establishment of broader and more accurate approaches regarding the role of culture in the socioeconomic development of European countries. The particular policy field attracts the interest of countries due to its strong developmental prospects. Cultural and creative industries are considered to incorporate a strong dynamism and potential for participatory and inclusive development. Therefore, the promotion of effective policies fostering the development and growth of the particular industries has social and economic benefits for broad groups of stakeholders.

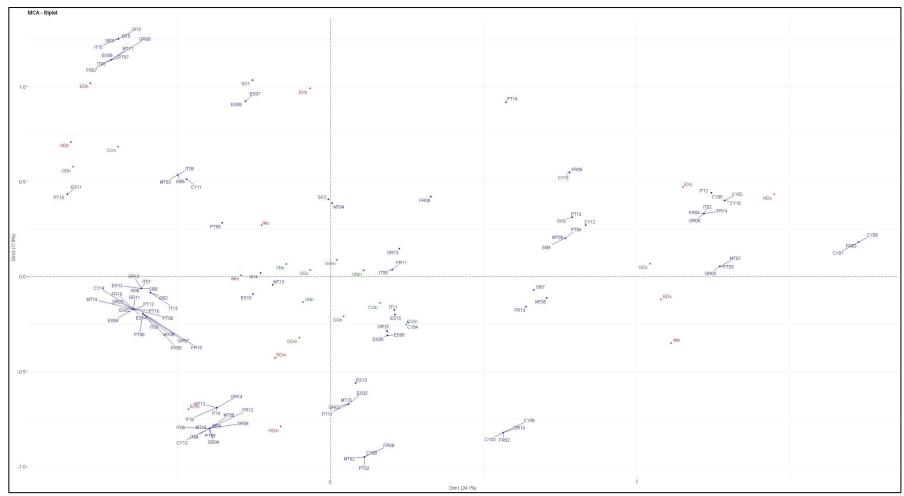


Figure 3. MCA biplot (variables and countries-years)

The European interest in developing the cultural and creative industries and enhancing the cultural goods trade had a rather slow pace in the past, but during recent years there have been indications of an increasing trend. The paper focused on the cultural goods trade in ten European countries for a period of fourteen years (2002-2015) and explored the probability of association with the countries' performance in specific fields of human and economic development. The methods of Multiple Correspondence Analysis-MCA and Hierarchical Clustering-HC were implemented in a multivariable table, which took into consideration variables that were not limited only to the imports and exports of cultural goods, but also extended to supplementary variables with social and economic focus (lifelong learning, human development index, unemployment, GDP, GDP growth and global competitiveness ranking). The lack of analytical and longstanding statistical data in the field of culture constitutes a significant obstacle to the detailed exploration of the particular policy field. However, the use of the particular methodology appears to be able to designate interesting dimensions of hidden relations among different factors and to contribute to a more efficient policymaking. In general, one can observe the lack of a strong relevance between the cultural goods (import or export) trade and the other variables, as well as the absence of a clear and well-organized strategy in the national agendas.

Overall, the Multidimensional Data Analysis methodology offers researchers the opportunity to use a large number of variables from different fields of interest and to explore the existence (or to conclude the non-existence) of interrelations among them, thus forming a basis for more effective policy interventions. Countries can determine the fields where greater attention and targeted initiatives are necessary. Moreover, they are able to articulate their policies more efficiently by adjusting them to their competitive advantages, and to establish viable interventions.

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