Creative Industries, development and innovation in perspective: building an index for creative economy

Leandro Valiati, professor and Coordinator of Work Group Creative Economics, Culture and Development in Center for International Studies of Government - UFRGS- Porto Alegre- Brazil (leandro.valiati@gmail.com).

Camila Lohmann Cauzzi, researcher-student at Work Group Creative Economics, Culture and Development in Center for International Studies of Government - UFRGS (camilacauzzi@gmail.com).

Campus do Vale, Building 43322 - Av. Bento Gonçalves, 9500

Porto Alegre - RS, Brasil, CEP 91509-900

Tel:+55 51 3308-9860

Abstract

Assuming there is a difference in the structural pattern of creative industries in developed countries and in emerging economies, the main objective of this article is to reflect on the rationale of building an index that can cover the different dimensions of creative-led economic development.

The Creative Environment Index built in this paper consists on the combination of four sub-indexes concerning cultural resources, socio-economic development, business environment, and market. Data on income, access to the internet, political rights, tolerance, innovation and research, credit, education, trade, tourism, intellectual property, and cultural patrimony were used to compare BRICs and Latin American countries with European countries and other developed economies, using the most recent information available. An endogenous weight method was used to calculate the grades in the indexes, in order to cover the specific characteristics of each country.

The results of this index will contribute to the investigation of the different patterns of Creative Economy development, as well as the obstacles that emerging economies should overcome to consolidate creative and cultural industries as activities that lead to innovation and regional economic development.

Keywords: Creative Economy; creativity index; cultural economics; economic development.

JEL Classification: C43; Z10

1. Introduction

1.1. Creative industries and economic development

Many economists have dedicated their studies to the analysis of economic development and its influencing factors. In the neoclassic's view – like Meade and Solow – as well as in some Keynesian authors' perspective – like Harrod, Domar and Kaldor – economic growth and economic development are considered as being equivalent. Other economists, such as Lewis, Hirschman, Myrdal and Nurkse, have analyzed empiric experiences and affirm that economic growth is a necessary condition to economic development, but it is not sufficient; in fact, they state that economic growth is simply a quantitative variation of output, while development is a qualitative variation in people's lives, and depends on more dimensions (Souza 2005).

Schumpeter (1934) is one of the economists that separate the concepts of growth and development. He sustains that economic growth happens as population and income rises, but development cannot be explained by this natural path through a circular flow; development happens when there is a spontaneous change that breaks the previous equilibrium and dislocates the cycle to a new level. These disruptions come from new discontinuous combinations of factors, such as new products, new methods of production, new markets, new sources of supply, or new organization of any industry.

Many factors, thus, are defining elements of a developed or undeveloped country. Many indicators, such as nutrition, income per capita, life expectancy, education, and infrastructure can represent the level of development of a country. In fact, development has many dimensions.

But what can an undeveloped country do to overcome its situation? What are the factors that can lead to economic development? In Latin America, the ECLAC documents of 1949 and 1950 show a structural approach for the relation between developed and undeveloped countries. Rodríguez (1981) recounts that ECLAC's idea of economic development is based on a "center and periphery" configuration of economic exchanges: the central economies are those in which new production techniques penetrate first, while the peripheral economies are those that are comparably late in the matter of technology and organization. In peripheral countries, the new production techniques are implemented mainly in the industries led by exportation purposes and they coexist with

other undeveloped sectors in these economies. The type of products exported by peripheral countries – usually primary goods – tended to be less productive than industrialized products – that were central countries' specialization at the time – and, therefore, there was a big gap between the incomes in these two groups of countries (Rodríguez 1981).

Through the development of new technologies and new forms of production, a new paradigm ascended: the "post-industrial society". This concept was used by Daniel Bell (1973) and "emphasizes the centrality of theoretical knowledge as the axis around which new technology, economic growth and the stratification of society will be organized". An information-based society, thus, is based on services other than goods. Mellander (2009) reports many authors who have analyzed "the transition in developed countries from a manufacturing – based industry toward a service – and finally knowledge-based industry", such as Rosenberg & Birdzell (1986) and Mokyr (1990).

Recently, studies have analyzed the role of the creative industries in economic development. Boston Redevelopment Authority (2005) defines creativity as "the process by which ideas are generated, connected and transformed into things that are valued", which may be compared to Bell's (1973) notion of the "post-industrial society". According to UNCTAD (2010), creative industries "use creativity and intellectual capital as primary inputs" and can be considered "knowledge-based activities, focused on but not limited to arts, potentially generating revenues from trade and intellectual property rights". In that way, according to UNCTAD (2010), creative industries are at the center of a concept of creative economy, representing a means to human development and social inclusion.

> The creative industries that use these [cultural] resources not only enable countries to tell their own stories and to project their own unique cultural identities to themselves and to the world but they also provide these countries with a source of economic growth, employment creation and increased participation in the global economy (UNCTAD 2010).

Assuming that creative economy is an alternative for economic development in the present context of progress in communication technology and world trade (UNCTAD 2010), and that developed economies have a more dynamic performance in this substance, compared to emerging economies, the goal of this paper is to build an index that covers important dimensions of creative-led economic development, in order to analyze the weakest points in the emerging economies, which need a stronger policy agenda.

This paper will cover a bibliographic review of existing Creative Economy indexes – by which the Creative Environment Index was inspired – and describe the rationale of the construction and calculation of this multidimensional measure in the first and second sessions. The third session presents an analysis of the results. The building process of the Creative Environment Index, as well as its results, will contribute to the investigation of the different patterns of development of creative economy in each country, based on its respective peculiarities.

1.2. Building an index on creative economy: the recent efforts

Creative Economy seems to be on focus recently, as the publications of such theme have risen in the last years. Many authors have shown effort in developing indexes on Creative Economy, each by choosing different variables for a contextual or potential analysis of this subject. Some of the examples of creative economy indexes are Richard Florida's Global Creativity Index, the Composite Index on Creative Economy (CICE), and the CreativeMED Index. The Creative Environment Index, developed in this paper, gets inspiration from fragments of each of these three measures, while it makes some adaptations and additions, in a way to focus on a Latin American point of view of development and to represent the creative environment and potential of each country.

The Global Creativity Index is a report published by the Martin Prosperity Institute, and has editions for the years 2004, 2001 and 2015. This index is based on Richard Florida's idea of the "3 T's of economic development": technology, talent and tolerance (Florida 2012), and is developed by the author himself, along with Charlotta Mellander and Karen King, in the latest edition published in 2015.

According to Florida et al. (2015), technology is important to improve efficiency and productivity in knowledge-based economies. In order to represent that factor, Florida et al. (2015) use data on expenditure of R%D (as percent of GDP) and number of patent applications per million people in each country.

Another important factor for economic development is talent and creativity. Florida et al. (2015) combines the traditional human capital measure (share of a country's population that participates in tertiary education) and the percentage of creative workers in a country's labor force – the "creative class". The creative workers are the ones occupied in science and technology and engineering; arts, culture, entertainment, and the

media; business and management; and education, healthcare, and law (Florida et al. 2015).

The third "T" of economic development is tolerance. Florida (2012) states that talented and creative people are attracted by places that are open to new ideas. According to the author, talented people are flow resources, not stocks, and they are likely to move around. In fact, places welcoming to immigrants, artists, gays and bohemians are strongly correlated with places that experience high-quality economic growth (Florida 2012). Therefore, the two components of the tolerance index are: percentage of people who believe their city or area is good for racial and ethnic minorities and percentage of people who believe their city or area is a good place for gay and lesbian people (Florida et al. 2015).

The Global Creativity Index, thus, is a combination of six variables divided in three sub-indexes. Florida et al. (2015) graded each of the variables based on its respective highest value. The score in each one of the sub-indexes is an arithmetic mean of the scores in the respective component variables. Then, the authors graded each of the three indexes by giving the highest value for the top performer. The final result of the index is an arithmetic mean of the "three T's."

In order to test the reliance of this index, Florida et al. (2015) analyzed the correlation of the results with variables like economic output, entrepreneurship, competitive-ness, human development, urbanization, and income inequality. All of these indicators – except for the income inequality – have positive correlation with the results of the Glob-al City Index. The most correlated ones are entrepreneurship, competitiveness, and human development.

Harry P. Bowen, Wim Moesen and Leo Sleuwaegen published, in 2006, a report called "A composite index on creative economy with application to regional best practices". The CICE is an index that measures the creative capacity of a region in three dimensions: innovation, entrepreneurship and openness. Bowen et al. (2006) biggest innovation, in the matter of creative indexes, is the introduction of the method of endogenous weights.

According to Bowen et al. (2006), using the same weights for all the regions can bias the results and occult policy priorities and specific characteristics of each analyzed region. The authors, thus, present an alternative to the traditional method, by setting different weights in the variables for each region, in a way to benefit each region by the

variables in which they have their best performance. The authors called it the method of endogenous weights.

Bowen et. al (2006) divide its variables in three indexes: innovation – using data on human resources in science and technology, patents, and internet access –, entrepreneurship – using data on newly stablished companies, fear of failure, and venture capital –, and openness, in which they analyze data on foreign-born population, foreign students, and urban population.

The CreativeMed Index is a platform for analysis of the Mediterranean regions of Europe, developed by the Econcult research unit of the University of Valencia (Pau Rausell, Raül Abeledo, Ramón Marrades and Rafael Boix). This model is based on the idea that territorial and cultural capital from these regions should be used in a way to promote welfare and economic prosperity, in opposition to the use of financial or physical resources (CreativeMed [2014a]).

The structure of the CreativeMed [2014a] model consists of a set of preconditions, which are economic and cultural indicators analyzed individually, and three calculated sub-indexes. All of these measures are analyzed comparably to the performance in the whole Mediterranean region, in the regions of reference, in the region's country, and in Europe. The indicators of the preconditions are urban structure, semi-creative industries, workers in cultural and creative sectors, cultural resources, level of education of population, creative class, and quality of institutions. The three sub-indexes in the CreativeMed [2014a] model are trans-local socio-economic ecosystems, territorial innovation, and community scale partnership.

The trans-local socio-economic ecosystems sub-index consists of four indicators: transport accessibility, skilled migrants, trade connections, and tourism. This measure aims to analyze forms of work and business that transform local companies and networks into "trans-local" ones (CreativeMed [2014a]).

The CreativeMed (2014b) community scale partnership sub-index concerns the relationship between different sorts of stakeholders (such as people, private sector, public sector) in a local context. This sub-index has four indicators: participation in associations, trust in others, concern about living condition of people of the region, and internet for social purposes (CreativeMed [2014a]).

The third CreativeMed [2014a] sub-index is about territorial innovation. This measure uses attitudinal variables related to entrepreneurship and creativity, as well as data on regional innovation and the "university lifestyle". This index uses data on

innovative attitude, entrepreneurial attitude, the Regional Innovation Scoreboard, and university people.

The scores in the sub-indexes, as well as the performance in the individual indicators of the precondition set, are rated as bad, good, or normal performance. The platform, then, generates a diagnosis of the strong and weak points of each region, and suggests policy solutions and actions based on each region profile (CreativeMed [2014a]).

The Creative Environment Index, developed in this paper, takes inspiration from Florida et al.'s (2015) variables of tolerance and innovation, Bowen et al.'s (2006) endogenous weights method, and some CreativeMed's [2014a] indicators, such as internet users and university society, building one measure that focuses on the patterns and necessities of emerging economies.

2. Methodology

The Creative Environment Index is built through a dynamic purpose by ranking each variable compared to its higher value in the selected countries. The higher value in each variable corresponds to a grade of 100, while the other lower values are graded proportionally to its relative maximum. The grade in each sub-index consists of a weighted average of the scores in each variable, and follows the endogenous weight method presented by Bowen et al. (2006). The final score of the index, which unites the four sub-indexes, follows an adaptation of the endogenous weights model presented by Bowen et. al (2006). In that way, this index works as a fully comparison of the places included and can be reproduced for a larger number of countries (or other types of territorial delimitations), in order to analyze the contextual differences in that specific group.

This index consists of the combination of four sub-indexes concerning socio-economic development, business environment, market, and cultural resources. Most recent data available was used for each of the variables, which means not every variable relates to the same year.

The countries that will be analyzed are Latin American and other emerging markets (BRIC countries) – Argentina, Brazil, Chile, China, Colombia, India, and Russia – compared to Canada, France, Germany, Italy, Portugal, Spain, United Kingdom and United States of America.

2.1. The method of endogenous weights

The method of endogenous weights, introduced by Bowen et. al (2006), chooses the most favorable set of weights for each country, in a way to make the respective final results as high as they can be. This method is based on the idea that different indicators have different importance for each country, and is a simpler way to adjust the results to different realities, since it reveals preference, but doesn't require too much information.

The weighting procedure used in Bowen et. al (2006) consists of a linear programming problem, that is: to maximize the index, as seen on expression 1, subject to two restrictions. Besides the basic restriction (the sum of the weights must result to one, according to the restriction 2), the other restriction requires that every weight must not be lower than 15% nor higher than 50%, in order avoid both over and under weighting in the variables, as seen on the restriction 3.

$$(1)\ max \sum_{j=1}^{J} w_{ij} I_{ij}$$

subject to

$$(2)\ \sum_{j=1}^{J} w_{ij} = 1 \qquad \forall_i = 1, \dots, N$$

$$(3)\ 0{,}15 \geq w_{ij} \leq 0{,}5 \qquad \forall_i = 1, \dots, N;\ \forall_j = 1, \dots, J$$

The same expressions 1, 2, and 3 were used for calculating the final scores of the four sub-indexes of the Creative Environment measure. For the final score, which unites the four sub-indexes into one weighted mean value, an adaptation of the method was made, by changing one restriction. In order to make every dimension of the analysis an important factor in the final score of the index, the restriction 3 is replaced by the restriction 4, which states that every weight must not be neither lower than 15%, nor higher than 40%. The simplex method (Dantzig 1963) was used to solve these linear programming problems.

$$(4)\ 0{,}15 \geq w_{ij} \leq 0{,}4 \qquad \forall_i = 1, \dots, N;\ \forall_j = 1, \dots, J$$

2.2. The Socio-economic Development sub-index

The general outlook of a country is an important factor in the analysis of potential economic development, concerning any sector or industry. The socio-economic development sub-index is a contextual measure of populations' general opportunities and conditions, united to factors that are important for the development of creative economy in an area, such as tolerance for immigrants and homosexuals – as highlighted by Florida (2012, 2015) – and access to the internet (based on CreativeMed [2014a]).

Part of this sub-index is based on the Social Progress Index, which is developed by the Social Progress Imperative. According to the Social Progress Index report of 2015, written by Porter et al. (2015), the definition of social progress is based on three dimensions: basic human needs, foundations of wellbeing, and opportunity. Each of these dimensions represents a compound of several indicators (Porter et al. 2015).

The Creative Environment Index uses, as variables to the Socio-economic development sub-index, the raw values of three indicators from the Social Progress Index of 2015: percentage of population that uses internet, tolerance for immigrants, and tolerance for homosexuals. The Social Progress Imperative, in turn, used data from the International Telecommunications Union for its internet usage indicator. This variable represents the percentage of population using the internet from any device in the last 12 months (Porter et al. 2015). The measures on immigrants and sexuality tolerance were taken from the Gallup World Poll, and correspond to the percentage of people that answered yes when questioned if their city or area was a good place to live for each of these two minority groups (Porter et al. 2015).

Besides these three variables, the socio-economic development sub-index also includes GDP per capita, which is a traditional indicator in economic development analysis. The numbers for GDP per capita (in current US$) are from the World Bank database and correspond to 2014, last year in which data was available.

Another dimension considered in this sub-index is the democracy and freedom level of the listed countries, represented by the aggregated scores of the Freedom in the World report of 2016. The Freedom House is the organization responsible for this report, which uses a methodology derived from the Universal Declaration of Human Rights. The final status of a country (free, partly free, or not free) derives from the aggregated score of two ratings: political rights and civil liberties (Freedom House 2016a). The political

rights rating englobes three subcategories: Electoral Process, Political Pluralism and Participation, and Functioning of Government. The civil liberties ratings are clustered into four subcategories: Freedom of Expression and Belief, Associational and Organizational Rights, Rule of Law, and Personal Autonomy and Individual Rights (Freedom House 2016b). The scores in each variables are shown on table 1.

Table 1 Scores in the Socio-economic development sub-index, per country

Country	GDP per capita	Internet users (% of population)	Political rights and civil liberty	Tolerance for immigrants	Tolerance for homosexuals
Argentina	22,9	66,7	79,8	86,9	75,0
Brazil	21,5	57,4	81,8	76,7	73,9
Canada	91,9	95,5	100,0	100,0	91,8
Chile	26,6	74,0	96,0	76,4	60,3
China	13,9	51,0	16,2	46,2	15,7
Colombia	14,5	57,5	63,6	81,7	61,5
France	78,2	91,2	91,9	83,4	76,3
Germany	87,5	93,5	96,0	86,2	80,8
India	2,9	16,8	77,8	39,2	27,8
Italy	64,5	65,1	89,9	77,9	65,9
Portugal	40,5	69,1	98,0	98,4	65,6
Russia	23,3	68,3	22,2	47,7	9,9
Spain	54,4	79,7	96,0	99,1	100,0
United Kingdom	84,7	100,0	96,0	91,3	88,4
USA	100,0	93,7	90,9	93,9	82,0

Source: The World Bank, International Telecommunications Union, Social Progress Index, Freedom House, Gallup World Poll. *Note:* The values are presented as an index number where the highest value = 100, in each column.

2.3. The Business Environment Sub-index

The business environment sub-index consists of the combination of three variables, which are patent applications, expenditure on R&D, and facility on getting credit. Patent applications can show how much the country has accomplished on innovation so far, while expenditure on R&D is an indicative on the potential of development and innovation of a country. Facility on getting credit is an important factor for ideas to become real innovative results (Schumpeter 1934).

Table 2 Scores of the business environment sub-index, per country

Country	Patent applications per million people	Expenditure on R&D (% of GDP)	Getting credit index
Argentina	1,3	20,1	52,6
Brazil	2,5	40,0	47,4
Canada	13,2	59,4	89,5
Chile	2,8	12,7	52,6
China	65,7	67,0	52,6
Colombia	0,6	7,5	100,0
France	24,5	77,5	52,6
Germany	66,5	100,0	73,7
India	1,0	28,6	68,4
Italy	15,8	44,1	47,4
Portugal	7,8	47,9	47,4
Russia	18,7	39,1	63,2
Spain	7,1	44,1	63,2
United Kingdom	26,3	56,7	78,9
USA	100,0	97,5	100,0

Source: The World Bank, Doing Business. *Note:* The values are presented as an index number where the highest value = 100, in each column.

Data on expenditure on R&D was taken from the World Bank database and refers to 2012 – except from India, which refers to 2011, given the lack of availability of data for 2012. The variable concerns the expenditure on Research and Development and is shown as percent of each country's GDP. Therefore, the variable is adjusted to the reality of each country's economy.

The patent applications variable also uses data from the World Bank database. The numbers are for the year 2014, and are shown as patent application per million people, in order to make the variable more comparable for the different analyzed contexts.

The third variable of the Business Environment Sub-index concerns the facility on getting credit in each country. The values are taken from the Doing Business database. Doing Business is a World Bank Group project that analyzes business regulation across the world, and holds data on starting businesses, registering properties, paying taxes, and others (World Bank 2016). Facility on getting credit is one of the indexes the Doing Business project calculates. The business environment sub-index uses the values of the Distance to Frontier of the Getting Credit index, from the report of 2016, concerning the

year 2015. The Distance to Frontier means the distance of each country to the best performance score (World Bank 2016).

Table 2 shows the scores in each variable of this sub-index. The variable in which the Latin American and emerging economies had their worst scores, in a general way, is patent applications per million people. This is an indicative that these countries, despite their expenditures on R&D and their capacity of getting credit, have not accomplished desirable results in the innovative matter. The lower gap in the scores in the other two variables can suggest that there is a potential, in the emerging economies, of getting better performance in the future.

2.4. The Market Sub-index

In order to analyze the creative environment of a country, it is important to investigate its economic and institutional condition to host creative enterprises. The creative market sub-index relates to education and human capital – which is a potential dimension of creative economy – and economic output associated to creative economy – a dimension that shows the results of economic activity in that purpose.

Three variables are included in this index: population that either has completed or is currently participating on tertiary schooling, number of globally ranked universities per million people, and exports of creative goods and services. Those variables were chosen, as they are openly available for all the studied countries of this paper. Information such as people working on creative occupations – typical Florida's (2012) measure of the "creative class" – and domestic input or number of creative or semi creative industries – as seen on Creative MED's [2014a] preconditions variables – could be adequate for this index, but they are not easily found for several countries of the list. This type of information can be used in an adaptation of this methodology to a different list of countries, or regions of a country, where those data can be more easily and consistently found.

The source of the educational attainment variable is the Barro-Lee (2013) dataset. The value corresponds to the percentage of population in a country that either has completed tertiary education or is incompletely educated at a tertiary level in 2010. In that way, the measure clusters the people with higher education – traditional human capital measure (Becker 1964) – and the university population, as used similarly on the Creative MED's [2014a] methodology.

Table 3 Scores in the variables of the Market sub-index, per country

Country	Tertiary education	Globally ranked universities per million people	Exports of creative goods and services
Argentina	18,9	32,5	3,2
Brazil	18,2	9,3	10,0
Canada	76,9	63,8	21,3
Chile	29,2	54,0	3,4
China	5,8	2,9	100,0
Colombia	31,9	16,4	2,5
France	39,4	58,0	25,9
Germany	39,1	47,4	66,4
India	14,6	0,9	14,7
Italy	19,6	51,7	22,9
Portugal	20,5	50,3	2,8
Russia	100,0	12,7	22,2
Spain	41,4	35,7	14,1
United Kingdom	45,7	100,0	21,7
USA	92,4	49,5	72,9

Source: Barro-Lee (2013), Social Progress Index, UNCTAD. *Note:* The values are presented as an index number where the highest value = 100, in each column.

The second variable is the number of global ranked universities of a country. The values are taken from the Social Progress Index database and correspond to the number of universities of a country that are ranked in any of these three international university rankings: Times Higher Education World University Ranking, QS World University Rankings, and Academic Ranking of World Universities (Porter et al. 2015). This variable is shown as number of globally ranked universities per million people, so it could be adjusted for each country's respective size of population. This variable shows the quality of tertiary education of the countries, and could also represent the capacity of creativity and innovation of higher educated and undergraduate people of the analyzed territories.

The third variable of the Market index concerns the exports of creative goods and services of each country. The data was extracted from the UNCTAD database and relate to the year 2014. This output variable can show the size of the creative industries in each country, in a global prospect, and can be an indicator of what each economy has accomplished so far in the matter of creative economy activity. The scores in each variable are shown on table 3.

2.5. The Cultural Resources Sub-index

Three variables were chosen to compose the sub-index concerning cultural resources in the selected countries: inbound tourism, denominations of origin (DOP) & protected geographical indications (PGI), and number of cultural sites. It is believed that these variables can characterize the cultural stock that each country holds, representing a potential to stimulate and catalyze new creative processes, goods, and services – as well as economic and social development.

Data on inbound tourism for the countries was taken from the World Bank database. The values are related to 2014 (latest year available) and concern the number of non-residents that travel to a country for a period less than 12 months and do not have remunerated activity as main purpose in the country of arrival (World Bank 2014).

Table 4 Scores in the variables of the cultural resources sub-index, per country

Country	Inbound tourism	Geographical indications per million people	Cultural sites
Argentina	7,1	1,1	10,6
Brazil	7,7	1,7	25,5
Canada	19,7	5,5	17,0
Chile	4,4	5,7	12,8
China	66,4	7,7	80,9
Colombia	3,1	3,8	12,8
France	100,0	26,8	80,9
Germany	39,4	8,3	80,9
India	9,2	1,5	53,2
Italy	58,0	36,1	100,0
Portugal	10,9	100,0	29,8
Russia	38,7	15,2	34,0
Spain	77,6	31,6	87,2
United Kingdom	38,9	6,8	53,2
USA	89,5	5,8	23,4

Source: The World Bank, DOOR (EU), Government websites of Brazil, Argentina, Colombia, Chile, China, Canada, India, Russia, and the USA, World Heritage Centre – UNESCO. *Note:* The values are presented as an index number where the highest value = 100, in each column.

UNCTAD (2010) highlights that intellectual property is considered a very important element of the development of creative economy. Copyright and geographical indications and appellations of origin are examples of intellectual property rights related to creative economy. According to UNCTAD (2010), “the significance of geographical

appellation is that it has a linkage to the cultural milieu of production and ways of life." Geographical indications, thus, can be an indicative of cultural traditions and ways of production that are characteristic of a territory, which have economic potential. Given the lack of an integrated database that includes every country of the list, each information was taken from respective local official organizations, and concern the number of native denominations of origin (DOP) and protected geographical indications (PGI) registered inside its own country. The sums of DOP and protected PGI registered in Germany, Italy, Spain, Portugal, France, and the UK were taken from the Database of Origin & Registration (DOOR) from the European Commission. The quantities of DOP and PGI in Brazil, Argentina, Colombia, Chile, China, Canada, India, Russia, and the USA[1] were taken from respective official government websites and reports. In order to make this variable more reliable and adjusted, the quantity of DOP and PGI were divided by the respective population and is shown as DOP and PGI per million people.

The number of cultural sites for each country is based on UNESCO's World Heritage Center list. The World Heritage list concerns both natural and cultural heritage. Cultural heritage consists of monuments, groups of buildings, and sites that are considered of Outstanding Universal Value for science, art or history (World Heritage Centre 2015). The concept of Outstanding Universal Value, according to the World Heritage Centre (2015), is "cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity" and must meet one or more of ten criteria settled by the World Heritage Centre (2015). Given the list of cultural, natural, and mixed sites stablished by the World Heritage Centre, the variable chosen to represent cultural heritage is the number of cultural and mixed sites in each country[2]. Table 4 shows the scores in each variable of this sub-index.

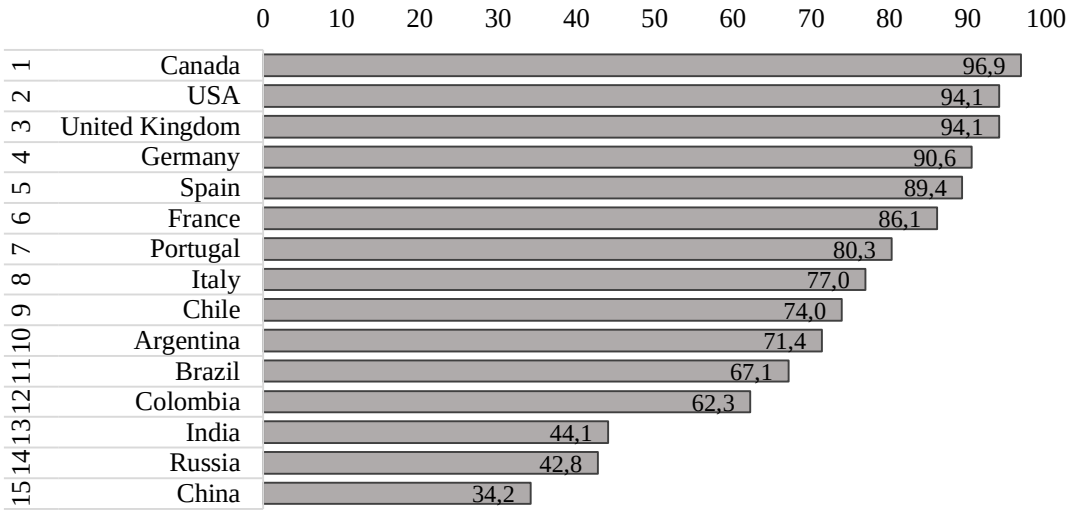
[1] Given the lack of an available list of all the geographical indications in the USA, the number used for this country refers to the established American Viticultural Areas registered by the American government, which may cause underestimation.

[2] It is important to sign the fact that, in the final World Heritage list, "cultural sites" englobe monuments, buildings, and sites. The numbers refer to April 21st, 2016, date when the WHC website was accessed.

3. The results

3.1. Socio-economic development

Figure 1 The Socio-economic Development sub-index: final scores



Source: Own elaboration.

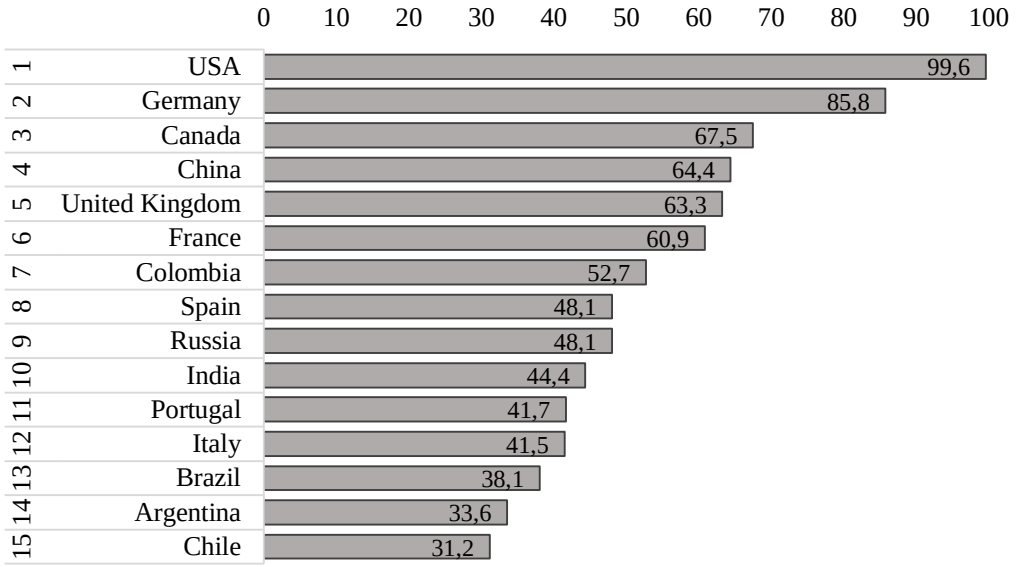
The scores in the socio-economic development sub-index show the basic information of a country's environment. All of the developed countries are placed in the leading positions of the ranking, being Canada the best country and Italy the worst in this group. The best performance in an emerging economy is Chile. India, Russia, and China are the countries with the worst performance of the list: their scores have a big difference from the other countries. While the other emerging economies have scores from 62,3 (Colombia) to 74 (Chile), India has a score of 44,1, Russia has a score of 42,8, and China has a score of 34,2 (Figure 1). Thus, Brazil is the country with leading advantage in the BRIC countries, having a core of 67,1.

3.2. Business environment

In the matter of business environment, the USA has the leading performance (having an almost perfect score of 99,6), with a considerable advantage from the second and third position (Germany and Canada, respectively), as presented on Figure 2.

There is not a big division from developed and undeveloped countries, like there was in the socio-economic development measure. China upsurges in the fourth position, having a close score to Canada and the UK, as seen on Figure 2.

Figure 2 The Business Environment sub-index: final scores



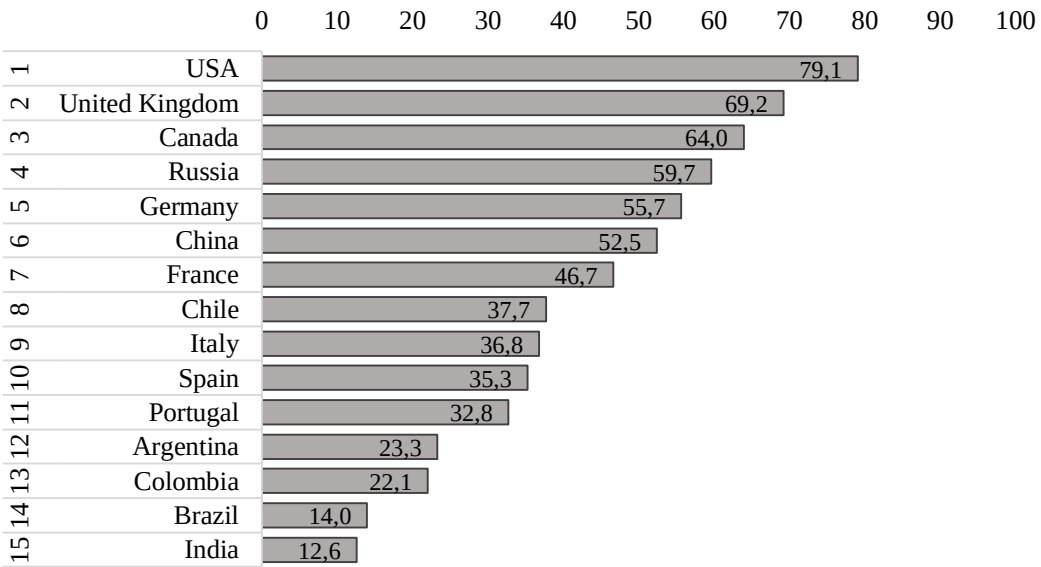
Source: Own elaboration.

Colombia and Russia also have good performances, being in higher positions than Portugal and Italy. Brazil, Argentina, and Chile are the last three countries in the ranking, with scores of 38,1, 33,6 and 31,2, respectively, as seen on Figure 3.

3.3. Market

Regarding the market measure, the USA shows at the first position once more, but with less advantage than in the Business Environment index (having a score of 79,1, followed by the UK, with 69,2 and Canada, with a score of 64).

Figure 3 The Market sub-index: final scores



Source: Own elaboration.

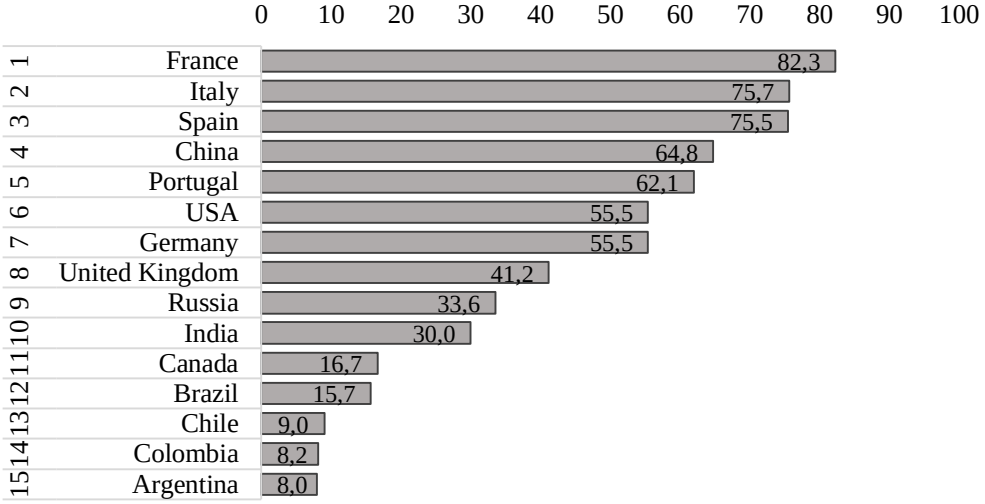
Russia is at the fourth position (having a score of 59,7), and China is at the sixth position in the ranking (having a score of 52,5), being the two best performances among the emerging economies.

Brazil and India are two worst performances in the index, showing very low scores (14,0 and 12,6, respectively). Italy, Spain, and Portugal have the worst scores among the developed countries.

3.4.Cultural Resources

France has the best score in the cultural resources index, followed by Italy and Spain. China has the best performance among the emerging economies, being at the fourth place on the ranking. As seen on Figure 4, Chile, Colombia, and Argentina are the last three countries in the ranking, having very low scores – 9,0, 8,2, and 8,0, respectively.

Figure 4 The Cultural Resources sub-index: final scores



Source: Own elaboration.

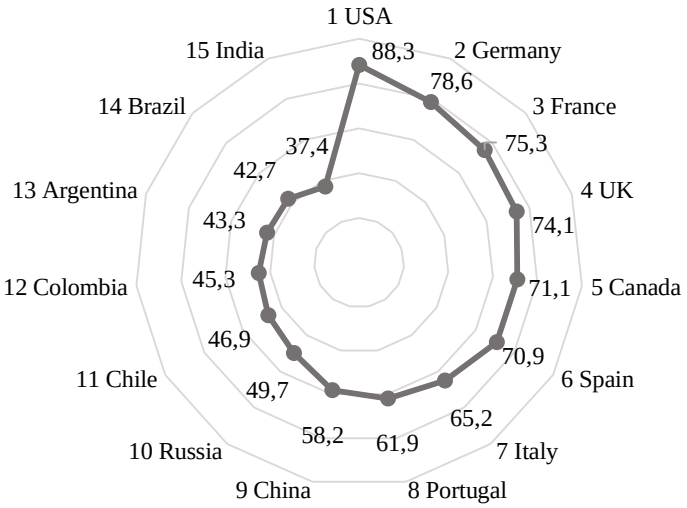
This score may not be an indicative that these countries have less cultural value, but it can be an indicative that the investments for promoting and consolidating culture in these countries are low. This could be seen as a loss of opportunity of making culture an economic input that generates development.

3.5. The final scores

The final index, which is an endogenous weighted mean of the four sub-indexes, is shown on Figure 5. The endogenous weight method is used in order to benefit each country by its best performance (Bowen et al. 2006).

The final ranking shows that all the European and other developed countries are placed in positions higher than the Latin American and other emerging economies. Among the developed countries, USA has the best score (88,3) and Portugal has the worst (61,9). Among the emerging economies, China has the best score (58,2), and India has the worst (37,4).

Figure 5 Final Score, per country

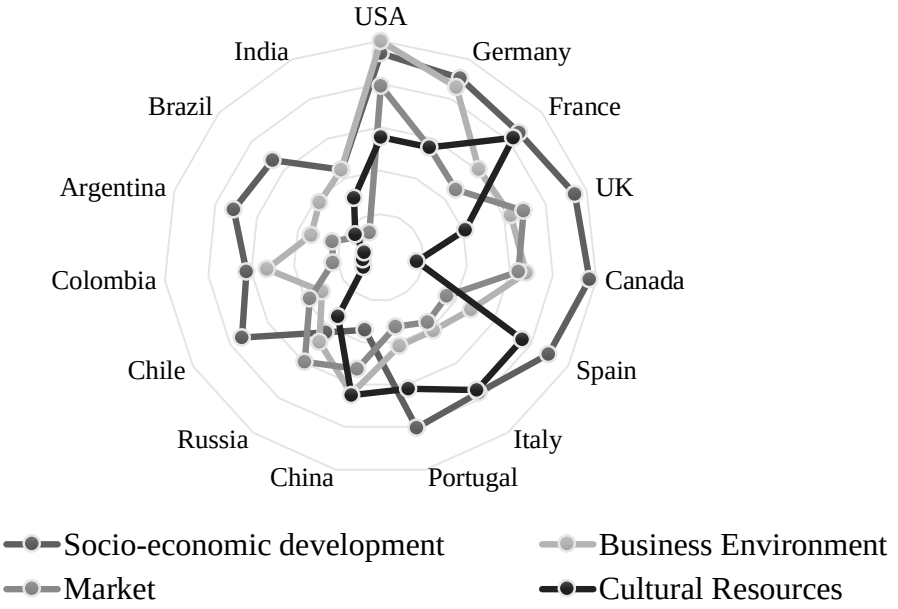


Source: Own elaboration.

China and Russia have the best performances among the BRIC countries: these two countries are the two best score from the emerging economies, while Brazil and India are the two worst.

Given the importance of cultural resources in the development of creative economy (UNTAD 2010; CreativeMed [2014a]) it is important to analyze the impact of this index in the composition of each country's overall score. Figure 6 shows the distribution of the four sub-indexes' scores in all the countries.

Figure 6 Differences in the scores of the four sub-indexes



Source: Own elaboration.

The only country in which cultural resources is the best score is China, which accords to the weight of 0,4 for that variable, calculated by the endogenous weight method. France, Italy, Portugal, and Spain also have strong representation of cultural resources, compared to the other scores, with a weight of 0,3. Germany, the USA, the UK, Canada, Russia, Chile, Colombia, and Argentina have cultural resources as their worst score, among the four sub-indexes' scores. Brazil and India have cultural resources as their second worst score in the four sub-indexes.

4. Conclusion

There are a lot of theories of economic development and its catalyzing factors. A wider creative-led model of economic development, based on fragments of many development theories and creative economy models – such as UNCTAD, Schumpeter, and others –, was used to build, in this paper, an index that could unite several dimensions into graphic and textual analyses of the chosen countries.

As economies have changed its development and operation paradigm through time, the many differences and factors that characterize underdevelopment have become more complex and profound. It could be said that ECLAC's model of "center and periphery" (Rodríguez 1981) has gained new denotation in the new economy – as information and creativity became important in the "post-industrial society" (Bell 1973)

–, but there are some factors that have been obstacles for peripheral countries since the preceding paradigms of economy, and haven't been overpowered yet.

The main objective was to build a primary index, focused on the differences between developed and emerging economies, finding data and bibliographical justification for every variable included in the measures, in order to analyze the weak points in the second mentioned group of countries. The final results of this incipient effort, however, can show the needs for policy in many aspects in the emerging economies, and can be an instrument for further and more profound analyses, if applied in different countries, regions, cities, or other territorial delimitations. This index can also be a foundation for a platform of policy suggestions, which can support emerging economies in a development path based on creativity and cultural resources.

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