“Building cultural capital indicators and economic development disparities: the Spanish and Italian case study”

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Aims and hypothesis
Cultural capital notions

Aims

1. Building cultural capital indicators with territorial specification
2. Analysis of territorial disparities on cultural capital distribution
3. Estimating contribution to regional and local economic growth

Capital cultural notions

1. G. Stigler and G. Becker (1977): Individual stock determining cultural consumption which depends on the level of training and past consumption experiences
2. D. Throsby (1999): A set of tangible and intangible elements which are the expression of a people's ingenuity, creativity and history. It can be understood as an asset which give rise to a derived flow of goods and services over time, and which can depreciate if not taken care of, or can accumulate if improved and invested in.

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Culture as a resource
Cultural capital theory

The Production function of a society

$$Y = A\ f(K, L, KH, KN, KS, KC)$$

Y: Income or wealth

A: Technology

K: Physical capital

L: Labour force

KH: Human capital

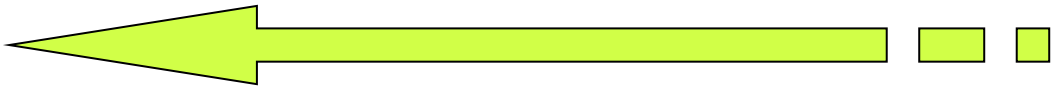
KN: Natural capital

KS: Social capital

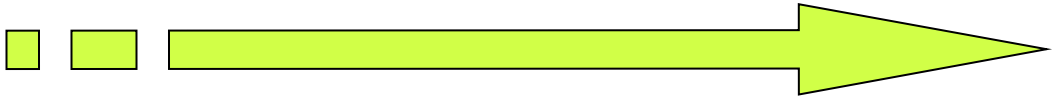
KC: Cultural Capital

Culture as a resource
Cultural capital theory

(a) Cultura as factor of economic development



$$Y = A\ f(K, L, KH, KN, KS, KC)$$

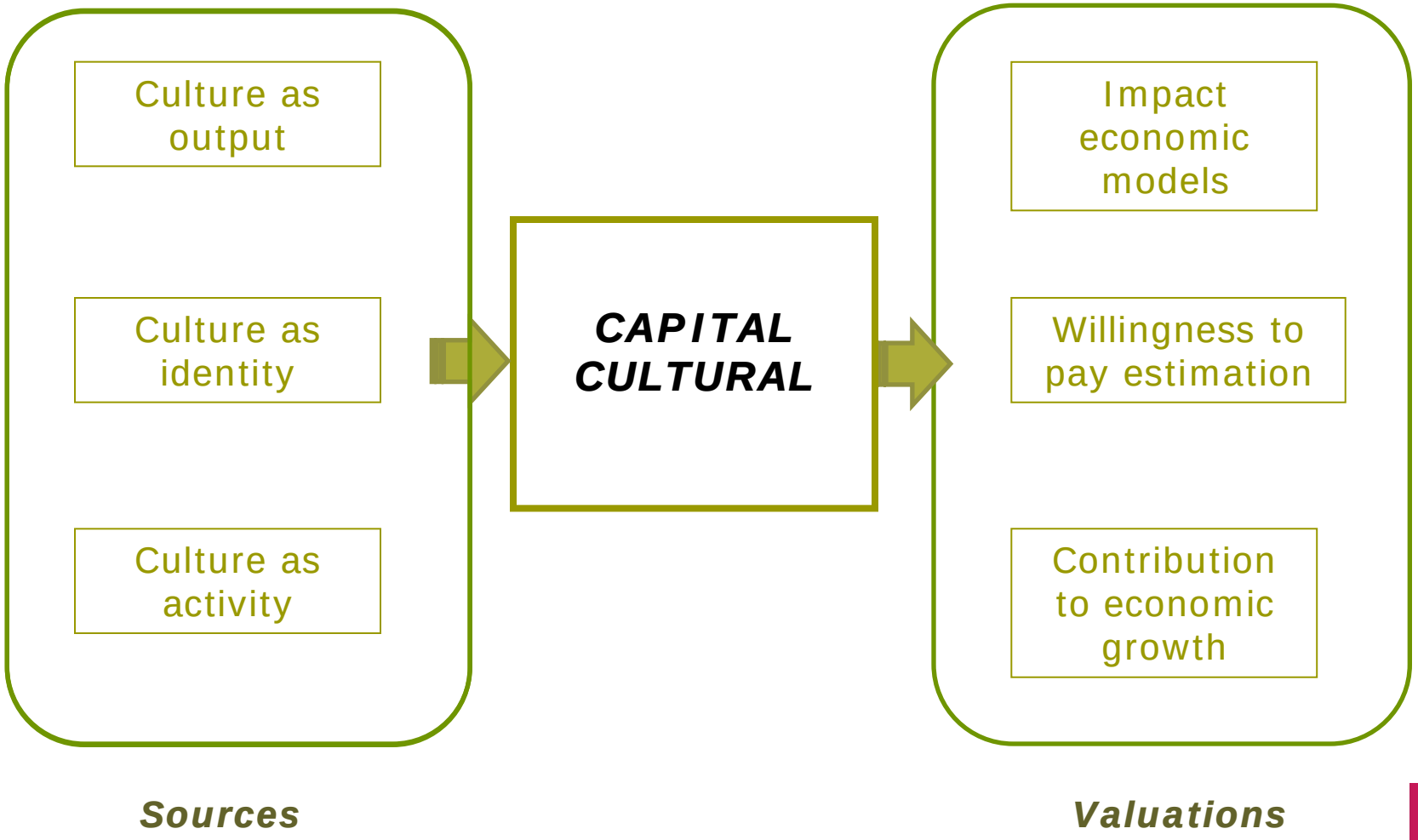


(b) Economic growth: changes in cultural sector scope and dynamism

Territorial disparities on culture and economic development

Rich regions-poor regions / / scope of cultural sector

Cultural capital theory
Sources of cultural capital and valuation



Cultural capital theory
A broader perspective to evaluate cultural capital

Weaknesses of previous studies

The ways of dealing with cultural capital valuation so far have consisted of partial solutions or ones restricted to a particular ecosystem:

- By calculating the economic impact of a specific cultural event, or by estimating the economic value assigned to a cultural expression. These are the well-known economic impact models, or the application of contingent valuation studies to obtain WTP for a cultural good.
- There are also studies that try to estimate the scope of the whole cultural sector in a country's GDP, but they are always based on national accounts addressing explicit activities and sectors.

New approach: four vectors for identification

On the basis of this limitations, and in order to provide a broader perspective, in our opinion a region's cultural capital may be explained in four main identity vectors:

1. A **vector of territorial identity**, which refers to major natural and cultural facilities available in a region, or some combination of both.
2. A **vector of cultural identity**, concerning an area's main cultural institutions and cultural initiatives. This also reflects the current level of cultural activity.
3. A **vector of historical identity**, which attempts to summarize the accumulated cultural identity of a people, which can be expressed in the form of commemorations, fairs, intangible heritage, etc.
4. Finally, a **vector of collective cultural identity**, understanding that cultural capital is here a relational factor, such as social networks, training and talent

Methodological approach
Cultural capital : Identity vectors

Configuring Cultural Capital: 4 IDENTITY VECTORS

Territorial Identity Vector ■ Cultural endowments ■ Natural resources	**Cultural Identity Vector** ■ Cultural Institutions ■ Cultural initiatives
Historical Identity Vector ■ Commemorations, fairs ■ Intangible heritage	**Collective Identity Vector** ■ Talent / Art Training ■ Cultural networking

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Methodological approach
Identity variables

Collecting variables to characterize cultural capital

Obviously, in order to characterize these 'Identity vectors' we will try to collect the maximum number of proxies for each item. In this slide, we show the variables considered so far. We should mention that collecting variables was a mammoth task, since sources are disperse, as well as scarce when territorial disaggregation is higher. However, the state of the matter in our empirical work is the following:

1. **Territorial identity proxies**, related with resources such as endowments: heritage (number of World Heritage Sites, as well as 'Goods of cultural interest', a special public nomination to protect the main expressions of heritage in Spain). We also consider the surface of National and Regional Parks as an expression of a region's natural resources. Finally, we take a mixture of both, natural resources and cultural creativity, by the way of the number of Food labelling or Official appellations (wines, cheeses, oil, vegetables), and gastronomy as accumulated culture, measured by the number of Michelin stars or the more relaxing Spanish scale, the 'Sol Repsol' stars.
2. **Cultural identity variables**: number of cultural institutions such as museums, theatres, concert halls, libraries, archives; as well as cultural events such as festivals. These proxies are also an expression of the scope of cultural activity in a region.
3. **Historical identity variables**, where we have tried to collect proxies of cultural idiosyncrasy such as special celebrations (public or religious matters), fairs, accredited tours, and so on.
4. Finally, variables of **cultural network identity**, such as the number of cultural and sports foundations, as well as the scope of artistic training and talent. In this pool, we also consider proxies related with safety and electoral participation.

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Methodological approach
Identity variables

Territorial Identity Vector / Km2	Cultural Identity Vector / Inhab.
■ World Heritage Sites ■ Goods of Cultural Interest ■ National Parks ■ Regional Parks ■ Food labelling & Official appellations ■ Michelín stars ■ Sol Repsol stars	■ Museums ■ Theatres and Concert Halls ■ Libraries ■ Archives ■ Theatre companies ■ Orchestras ■ Cultural festivals
Historical Identity Vector / Km2	**Collective Identity Vector / Inhab.**
■ International tourist interest fairs ■ National tourist interest fairs ■ Regional tourist interest fairs ■ Special events and commemorations ■ Cultural tours ■ Historical gardens	■ Cultural awards (MCU, Cervantes etc) ■ Cultural foundations ■ Sports foundations ■ Students in art training ■ Safety ■ Electoral participation

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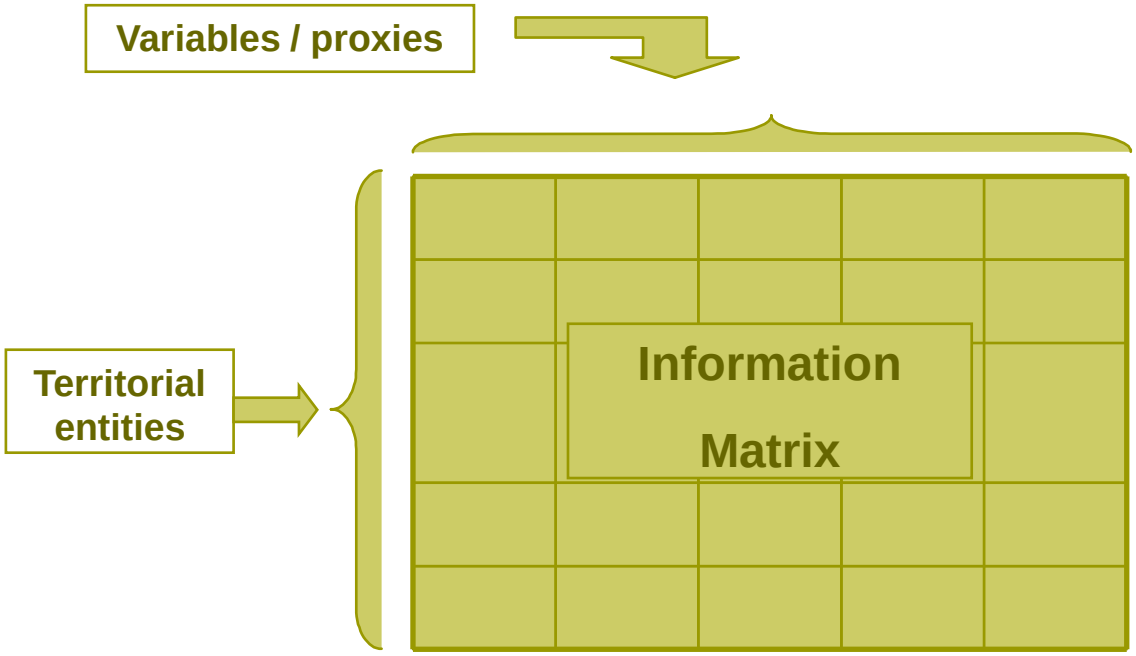
Methodological approach
Building Synthetic Indicators: multivariate analysis



Cultural Capital Factors

$$Fj = a_{j1}X_1 + aj_{j2}X_2 + ... + a_{jp}X_p;\ j = 1,2,..,q,$$

Cultural Capital Synthetic Indicator

$$IS\_KC\_Reg = \sum_1^4 \mu_i F_i$$

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Empirical application
Case studies: Spain / Italy

Our case study is twofold: the regional and provincial distribution of Italy and Spain. Data collection in both cases was relatively homogeneous, and they are two emblematic case studies due to their rich and deep cultural heritage as well as very clear-cut regional disparities in economic development

Italy: 20 regions / 110 provinces

Spain: 17 regions / 50 provinces

Empirical Application: SPAIN
Regional analysis: factor extraction

Varianza total explicada

Componente	Autovalores iniciales			Sumas de las saturaciones al cuadrado de la extracción			Suma de las saturaciones al cuadrado de la rotación		
	Total	% de la varianza	% acumulado	Total	% de la varianza	% acumulado	Total	% de la varianza	% acumulado
1	5,085	36,321	36,321	5,085	36,321	36,321	3,403	24,307	24,307
2	2,874	20,530	56,851	2,874	20,530	56,851	2,929	20,922	45,230
3	1,707	12,193	69,045	1,707	12,193	69,045	2,678	19,128	64,357
4	1,255	8,964	78,009	1,255	8,964	78,009	1,911	13,652	78,009
5	,881	6,295	84,304						
6	,745	5,318	89,622						
7	,459	3,276	92,898						
8	,400	2,860	95,758						
9	,255	1,820	97,577						
10	,218	1,556	99,134						
11	,056	,399	99,532						
12	,041	,293	99,825						
13	,021	,151	99,976						
14	,003	,024	100,000						

Método de extracción: Análisis de Componentes principales.

Matriz de componentes rotados[a]

	Componente			
	1	2	3	4
FESTIV_S	,891			
FUNDCYD_H	,822			
ESTRELL_S	,819			
RUT_S	,769			
BIC_S		,923		
DOP_S		,865		
PH_S		,777		
ESCEN_H		,609	,609	
CTEAT_H			,887	
PREM_H			,837	
PNACNAT_S				-,784
FIEST_S			-,617	,625
BIBARCH_S				,579
MUSCOL_H	-,466			,518

Método de extracción: Análisis de componentes principales.
Método de rotación: Normalización Varimax con Kaiser.
a. La rotación ha convergido en 6 iteraciones.

Factor Interpretation

Factor 1: *Cultural activity / tourist attractiveness*

Factor 2: *Cultural facilities*

Factor 3: *Talent / Performing arts resources*

Factor 4: *Cultural institutions*

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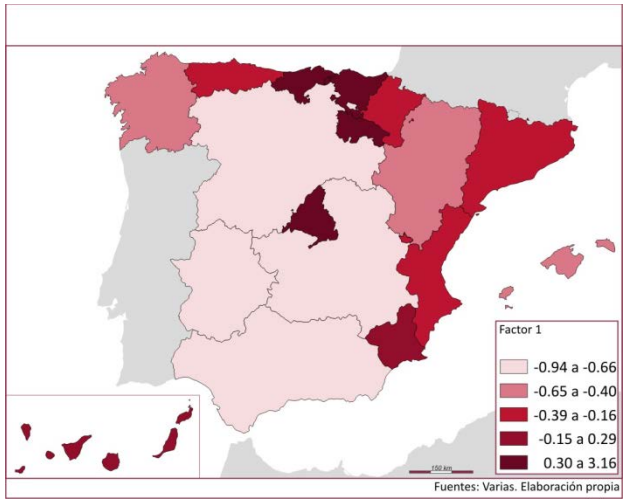
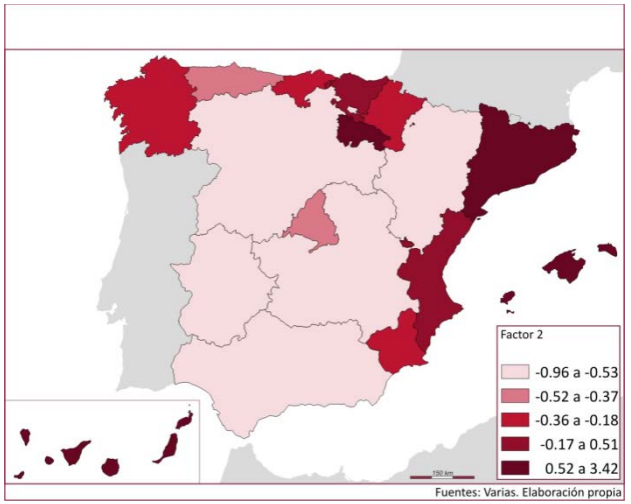
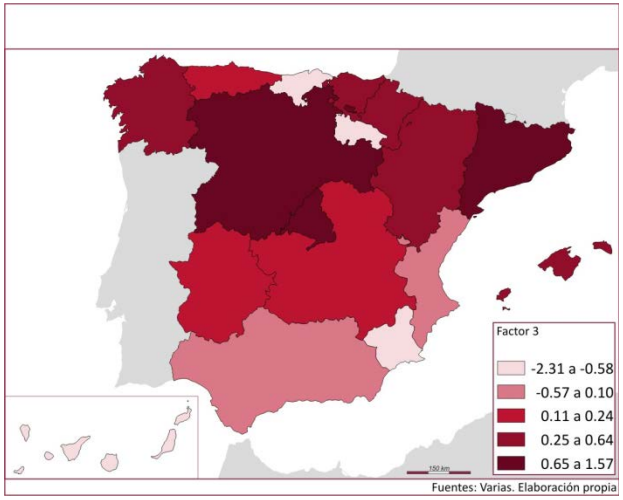
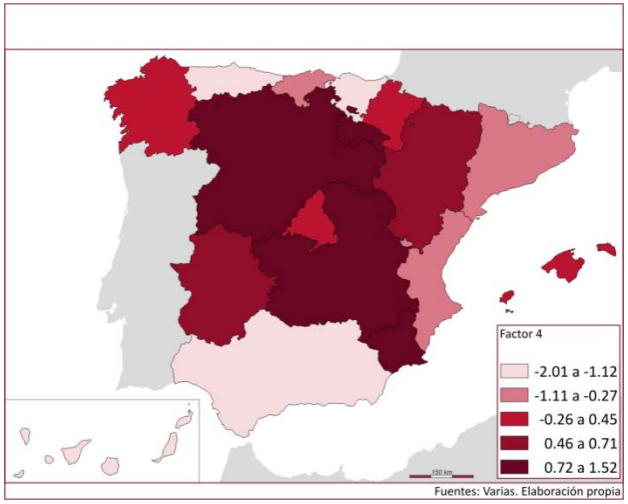
Empirical Application: SPAIN
Regional analysis: mapping CK factors









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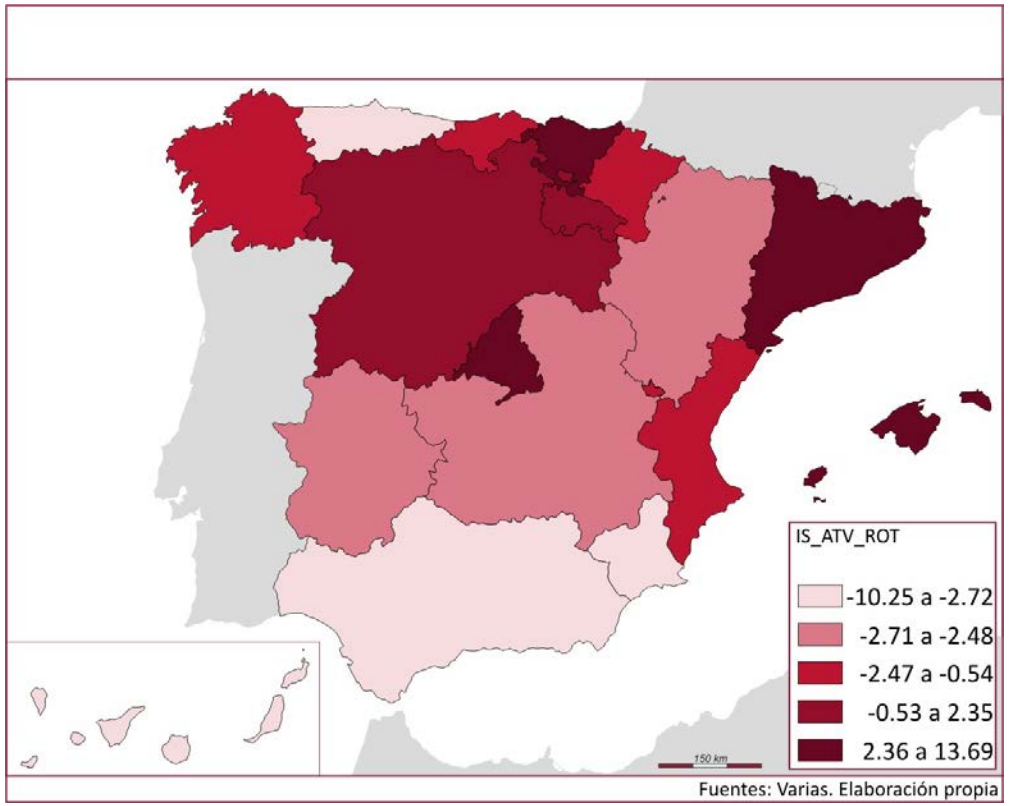
Empirical Application: SPAIN
Regional analysis: CK Synthetic Indicator

$$IS\_KC\_Reg = \sum_1^4 \mu_i F_i$$



REGIONS	IS_KC_Reg
MADRID	13,70
BALEARES	10,33
CATALUÑA	4,23
PAÍS VASCO	2,36
Rioja (La)	1,70
CASTILLA Y LEÓN	1,19
NAVARRA	-0,54
GALICIA	-0,56
CANTABRIA	-1,69
COMUNITAT VALENCIANA	-1,79
EXTREMADURA	-2,49
ARAGÓN	-2,53
CASTILLA-LA MANCHA	-2,58
Murcia (Región de)	-2,73
ASTURIAS	-3,70
CANARIAS	-4,63
ANDALUCIA	-10,26

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Empirical Application: SPAIN
Provincial analysis: factor extraction

Varianza total explicada

Componente	Autovalores iniciales			Sumas de las saturaciones al cuadrado de la extracción			Suma de las saturaciones al cuadrado de la rotación		
	Total	% de la varianza	% acumulado	Total	% de la varianza	% acumulado	Total	% de la varianza	% acumulado
1	3,205	26,708	26,708	3,205	26,708	26,708	2,133	17,771	17,771
2	1,994	16,620	43,327	1,994	16,620	43,327	2,072	17,266	35,038
3	1,317	10,975	54,302	1,317	10,975	54,302	1,880	15,670	50,708
4	1,265	10,540	64,841	1,265	10,540	64,841	1,544	12,870	63,578
5	1,203	10,026	74,868	1,203	10,026	74,868	1,355	11,290	74,868
6	,817	6,804	81,672						
7	,645	5,375	87,047						
8	,468	3,899	90,946						
9	,338	2,814	93,760						
10	,300	2,498	96,259						
11	,256	2,130	98,389						
12	,193	1,611	100,000						

Método de extracción: Análisis de Componentes principales.

Matriz de componentes rotados[a]

	Componente				
	1	2	3	4	5
DOP_S	,743				
BIC_S	,692				
PNAC_S	,689	-,360			
PH_S	,686	,461			
RUTAS_S		,904			
ESTRELLAS_S		,850			
MUS_H			,889		
BTECAS_H			,804		
FUNDAC_H				,856	
PREMIOS_H			,391	,717	
ESCEN_H					,791
FESTIV_H					,772

Método de extracción: Análisis de componentes principales.
Método de rotación: Normalización Varimax con Kaiser.

a. La rotación ha convergido en 8 iteraciones.

Factor Interpretation

Factor 1: *Natural and cultural heritage*

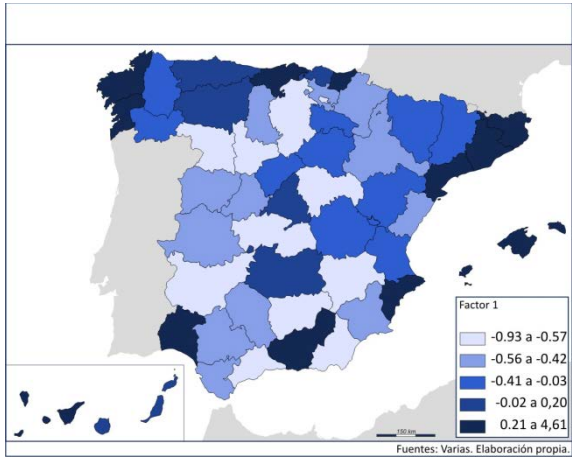
Factor 2: *Tourist attractiveness*

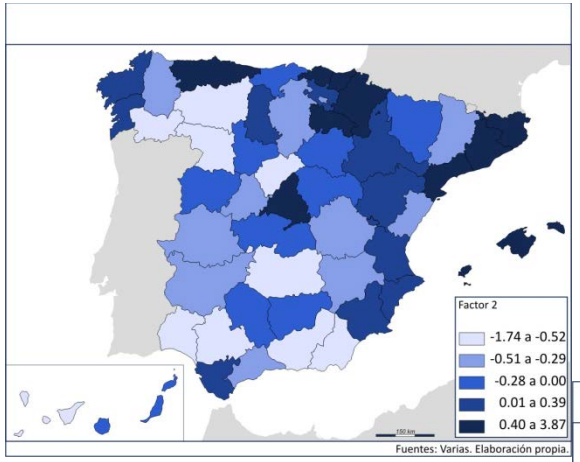
Factor 3: *Cultural institutions*

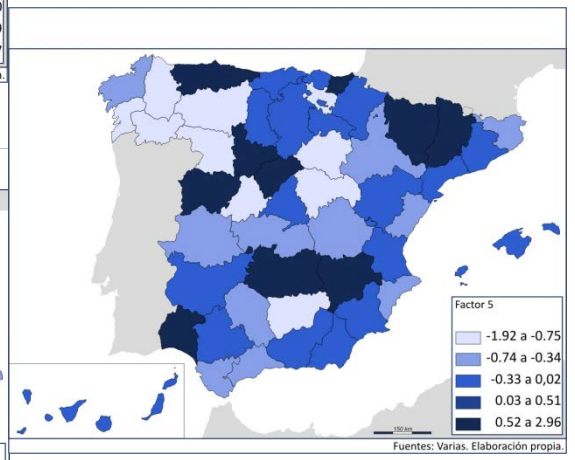
Factor 4: *Talent / Cultural activity*

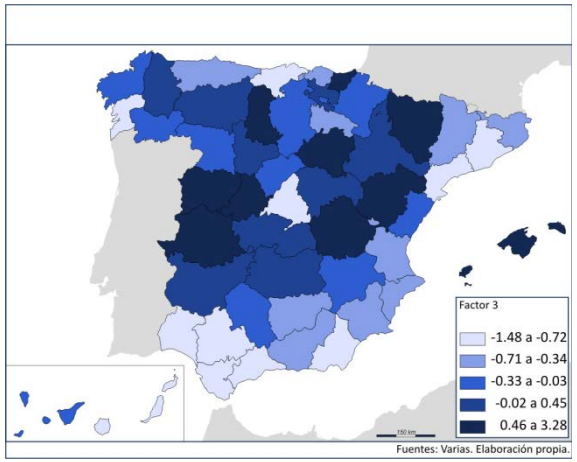
Factor 5: *Performing arts activity*

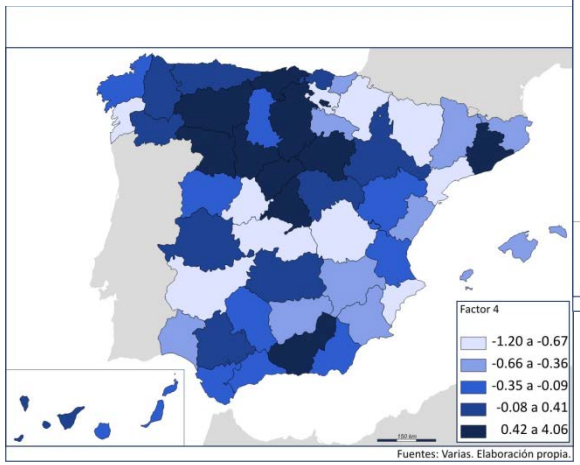
Empirical Application: SPAIN
Provincial analysis: mapping CK factors











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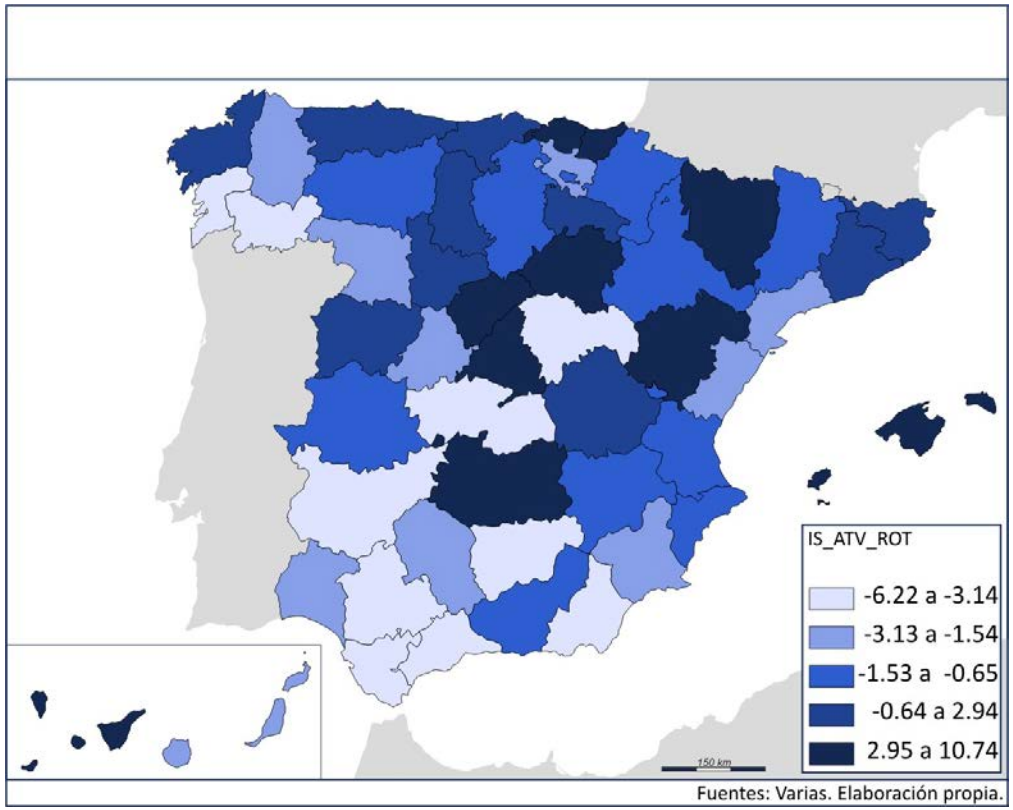
Empirical Application: SPAIN
Provincial analysis: CK Synthetic Indicator

$$IS\_KC\_Reg = \sum_1^5 \mu_i F_i$$



Provinces	IS_KC_Prv	Provinces	IS_KC_Prv
Almería	-6,11	Albacete	-1,29
Cádiz	-3,68	Ciudad Real	3,55
Córdoba	-2,47	Cuenca	0,71
Granada	-0,67	Guadalajara	-3,67
Huelva	-2,59	Toledo	-3,21
Jaén	-4,67	Barcelona	2,68
Málaga	-6,22	Girona	-0,47
Sevilla	-3,78	Lleida	-0,78
Huesca	4,06	Tarragona	-1,68
Teruel	6,21	Alicante/Alacant	-1,22
Zaragoza	-1,41	Castellón/Castelló	-3,11
Asturias	1,54	Valencia/València	-0,83
Balears (Illes)	10,74	Badajoz	-3,35
Palmas (Las)	-2,54	Cáceres	-0,97
Santa Cruz de Tenerife	6,65	Coruña (A)	-0,63
Cantabria	0,95	Lugo	-2,58
Ávila	-2,38	Ourense	-4,36
Burgos	-1,28	Pontevedra	-3,16
León	-0,88	Madrid	7,53
Palencia	0,94	Murcia	-2,32
Salamanca	2,18	Navarra	-1,14
Segovia	3,05	Araba/Álava	-2,73
Soria	8,19	Bizkaia	7,77
Valladolid	2,83	Gipuzkoa	9,97
Zamora	-3,13	Rioja (La)	-0,24

Empirical Application: **ITALY**
Capital Cultural Factors

Matriz de componentes rotados[a]

	Componente			
	1	2	3	4
MUS_H	,901			
FUND_H	,856			
EVEN_S	,843			
BIBARCH_H	,703			
MICH_S		,886		
PH_S		,759		
BIC_S		,511		
ORQ_S			,874	
TEAT_H			,549	,531
PNAC_S				-,828

Método de extracción: Análisis de componentes principales.

Método de rotación: Normalización Varimax con Kaiser.

a. La rotación ha convergido en 6 iteraciones.

Matriz de componentes rotados[a]

	Componente			
	1	2	3	4
BIC_S	,785			
MICH_S	,784			
DOC_S	,699			
TEAT_H		,770		
FUND_H		,764		
MUS_H	-,377	,696		
PNAC_S			,849	
BIBACH_H		,434	-,664	
ORQ_H				,971

Método de extracción: Análisis de componentes principales.

Método de rotación: Normalización Varimax con Kaiser.

a. La rotación ha convergido en 5 iteraciones.

Regional Analysis *(76% Var.)*
F1: *Cultural activity*
F2: *Accumulated cultural heritage*
F3: *Music and performing arts*
F4: *Performing arts facilities (+) / natural parks (-)*

Provincial Analysis *(69% Var.)*
F1: *Heritage and gastronomy*
F2: *Cultural activity*
F3: *Natural parks*
F4: *Music resources*

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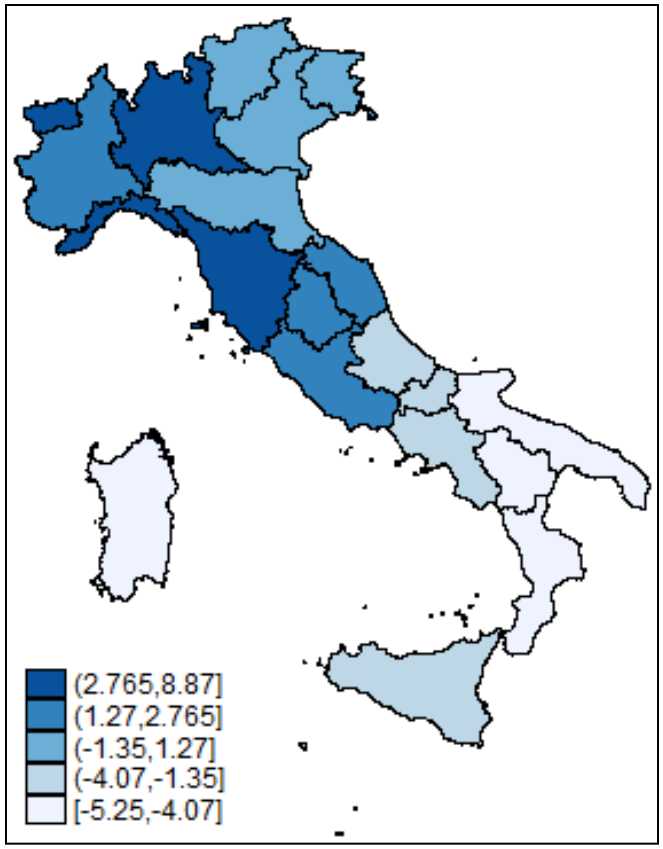
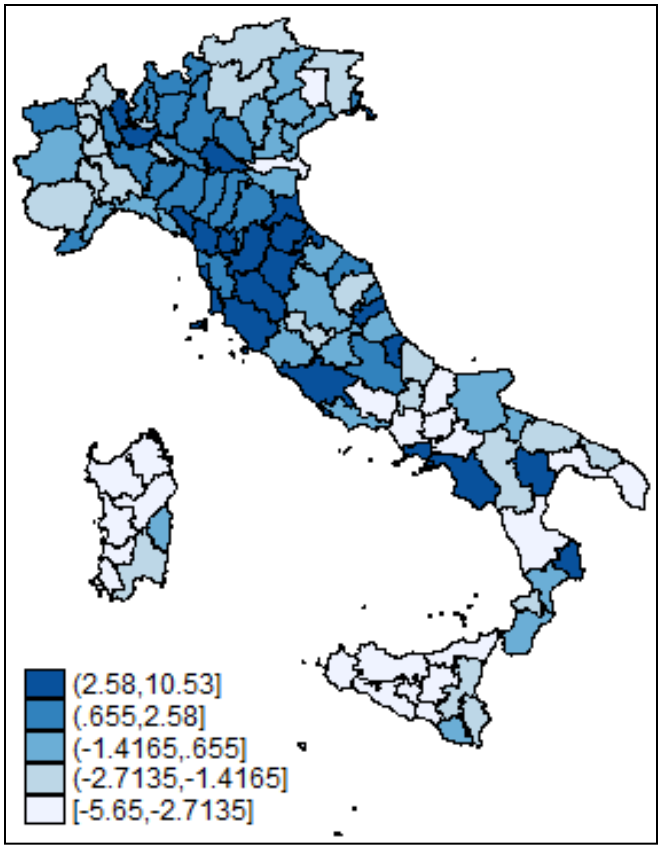
Empirical Application: ITALY
Capital Cultural Synthetic Indicators



Regional Analysis



Provincial Analysis

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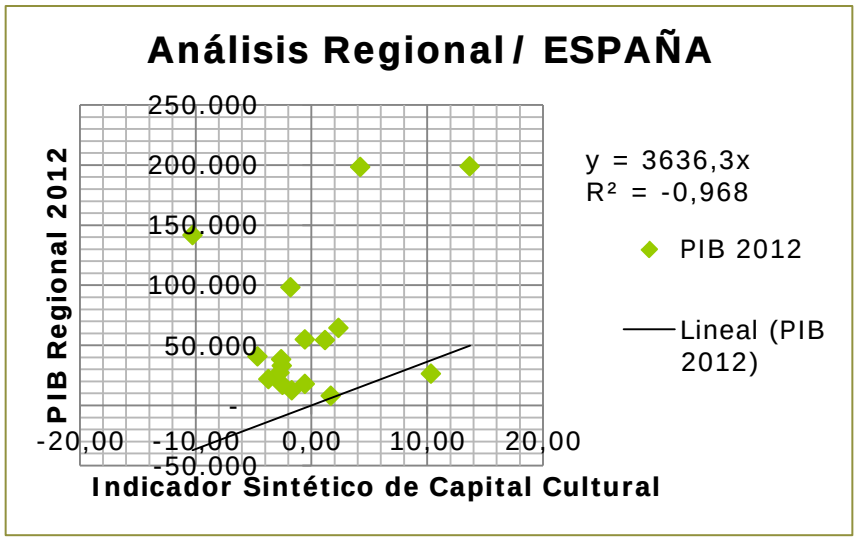
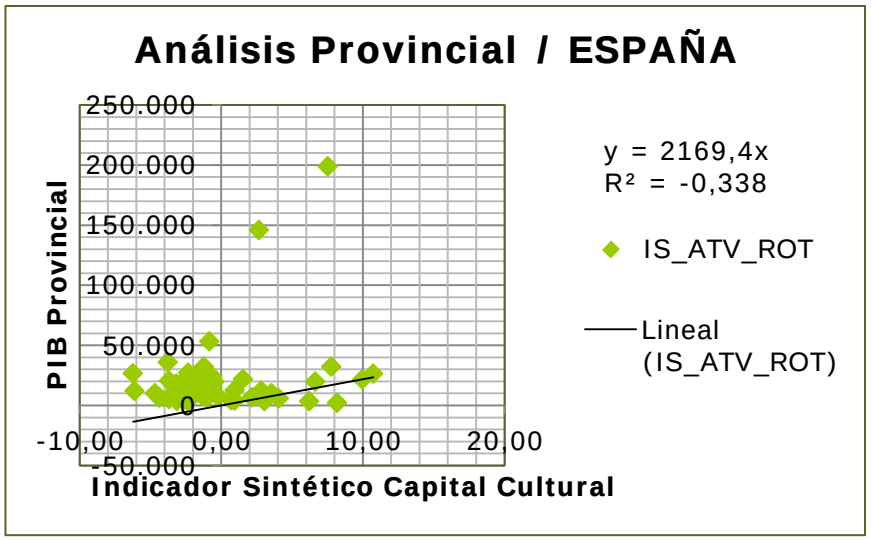
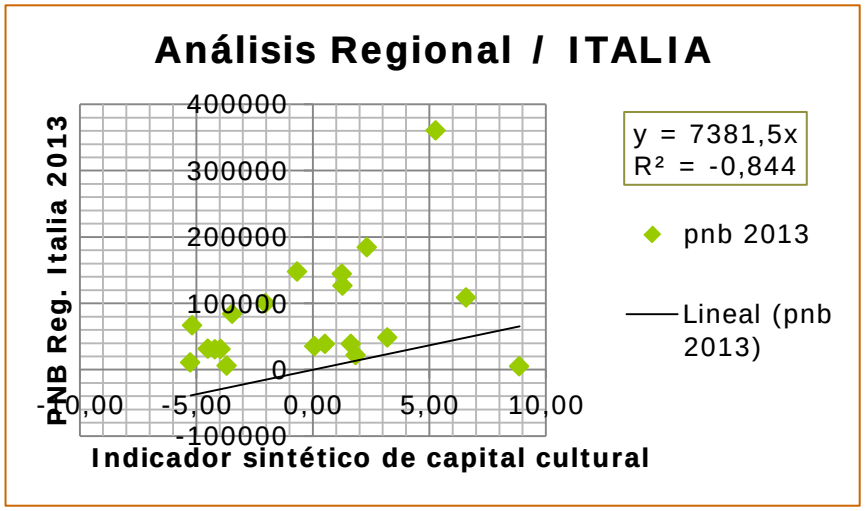
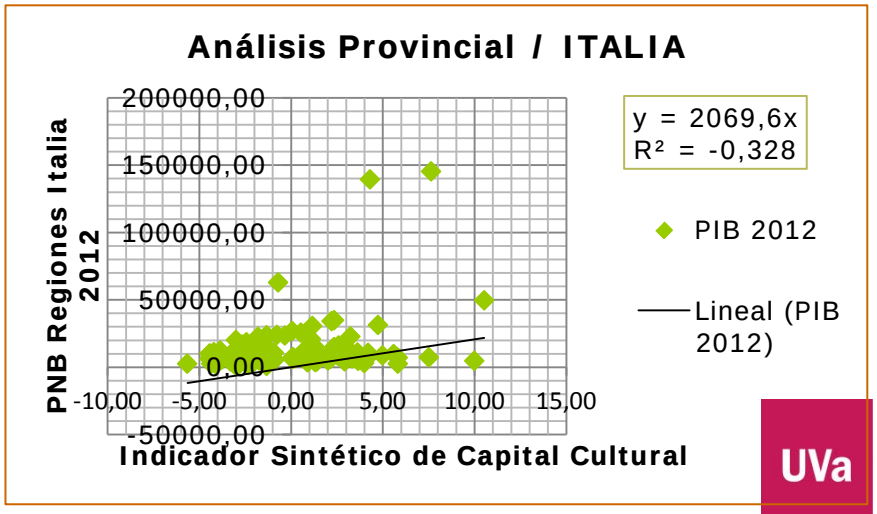
Empirical application
Cultural Capital (SI) vs Wealth (GDP)









Empirical application
Conclusions, challenges and future tasks

Main conclusions

1. **Cultural capital indicators** could be summarized by mainly few factors concerning: cultural endowments, tourist attractiveness, talent and cultural activity, cultural institutions, performing arts.
2. **Spain / Regional analysis**. We can say that the distribution of cultural capital seems to be more spread out throughout the Spanish regions, particularly if we compare these results with the economic activity in cultural sectors which are fully concentrated in two regions: Madrid and Catalonia (Barcelona), which accumulate 50% of cultural enterprises and employment. Moreover, the color degradation of the cultural capital synthetic indicator seems to exhibit the same path of the Income per capita, which could certainly be indicative of a common pattern between economic development and cultural capital distribution.
3. **Spain / Provincial analysis.** It keeps practically the same color degradation as the indicator at a regional level. There appears to be some overestimation of the provinces with low population density. They might be affected by the 'per capita effect', that is to say, similar cultural facilities and institutions divided by fewer people
4. **Italy**. There again seems to be a degradation of colors regarding territorial distribution of the Synthetic capital cultural indicator, very similar to the economic disparities in Italy and consequently with the degree of regional economic development.
5. This is not a closed work, but is open to discussion and suggestion. As an initial approach ,the results are somewhat diverse and could probably be improved, but they do show an **important relationship between cultural capital, economic development and territorial disparities**, both in Spain and Italy
6. **Challenges and future tasks**: Revisiting building indicators / Panel data construction over time / Cobb Douglas production function

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