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ARTÍCULO

CULTURE AND ECONOMIC DEVELOPMENT: BUILDING INDICATORS OF CULTURAL CAPITAL IN PERU

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Herrero Prieto, L. C., & Tamayo Gamboa, H. A. (2025). Culture and economic development: Building indicators of cultural capital in Peru. ***Cuadernos de Economía, 44*****(96), 1243-1274.**

We aim to construct cultural capital synthetic indicators considering cultural resources from a wide perspective and with spatial specification in order to assess their impact on economic development and spatial disparities. As a case study, we take Peru, a country boasting great cultural diversity throughout its regional division, ranging from material heritage to immaterial elements together with valuable cultural and creative entrepreneurship initiatives. We apply multivariate analysis to construct composite indices and clustering regions, and interpret the results by

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comparing them with economic disparities. We also examine the interaction and drivers between cultural capital and economic development at a regional scale.

Keywords: Cultural capital indicators; economic development; regional disparities; Peru.
JEL: Z11, R10, O12, L83.

Herrero Prieto, L. C., & Tamayo Gamboa, H. A. (2025). Cultura y desarrollo económico: creación de indicadores del capital cultural en Perú. *Cuadernos de Economía, 44*(96), 1243-1274.

El objetivo de este artículo es crear indicadores sintéticos de capital cultural que tengan en cuenta los recursos culturales desde una amplia perspectiva y con especificación territorial, a fin de evaluar su impacto en el desarrollo económico y las disparidades espaciales. Tomamos como caso de estudio Perú, un país que cuenta con una gran diversidad cultural en todas sus regiones, desde patrimonio material hasta elementos inmateriales, junto con valiosas iniciativas de emprendimiento cultural y creativo. Aplicamos análisis estadístico multivariante para crear índices compuestos y agrupar regiones e interpretamos los resultados en comparación con las disparidades económicas. También examinamos la interacción entre capital cultural y desarrollo económico a escala regional.

Palabras clave: indicadores de capital cultural; desarrollo económico, disparidades regionales, Perú.
JEL: Z11, R10, O12, L83.

INTRODUCTION

Cultural economics is a scientific discipline that is becoming a very fertile field for theoretical analysis and empirical research addressing the behaviour of individuals, institutions, and markets with regard to culture and derived goods. However, the evolution of the discipline (Cameron, 2019; Ginsburgh & Throsby, 2006, 2014) has been mainly driven by analyses from a microeconomic perspective, considering culture as a consumer good, a creative resource or an area of activity for management and intervention. In contrast, relatively less attention has been given to studies aimed at measuring how and to what extent culture contributes to economic growth and to explaining the spatial disparities that occur in this regard. From this perspective, culture is understood as a productive resource capable of determining part of the economic flows of a territorial enclave, and even its long-term potential growth (Bille & Schulze, 2006; Cerisola, 2018; Herrero, 2011).

In this field of study, there has been a proliferation of economic impact studies restricted to the scope of specific cultural events (Herrero et al., 2006; Lafuente et al., 2017) or to emblematic heritage prototypes (Murillo et al., 2008; Plaza, 2010), and also in Latin America (Aguado et al., 2017, 2024; Devesa et al., 2012). Likewise, broadening the territorial spectrum, there is a proliferation of studies on the capacity of the cultural and creative sector to generate economic development processes, showing the importance of the spatial interaction of these activities, which maintain a pattern of concentrated spatial location, where agglomeration economies and territorial proximity effects prevail (Boal & Herrero 2018; Boix et al., 2015; Coll et al., 2019). However, few studies seek to estimate the impact of culture on economic growth processes, i.e., as a resource that forms part of a society's production function. Some studies examine the interrelated effects of cultural amenities, human capital and acquired skills to explain the reasons for economic growth (Backman & Nilson, 2016; Bucci et al., 2014; Falck et al., 2011; Machado et al., 2013), while others extend the notion of culture to the attitudes, beliefs and traditions that define the idiosyncrasies of a society, and also determine its possibilities for long-term economic growth. In this line we find works based on the concept of cultural diversity and its impact on innovation and entrepreneurship (Bakens et al., 2015; Guiso et al., 2006; Tabellini, 2010). To the best of our knowledge, in Latin America there are few works on this issue, except for those focused more on social capital (Valencia et al., 2020) and quality of life indicators (Somarriba Arechavala & Zarozosa Espina, 2016). We also have the so-called Culture Based Development (Tubadji, 2012; Tubadji et al., 2015, 2022) that uses a more extensive and comprehensive definition of cultural capital, integrating the anthropological and institutional dimension together with indicators of cultural participation and endowment in order to analyse the contribution to the spatially differentiated economic development of regions.

Our research follows this line of work to some extent, as the purpose is to build synthetic indicators of cultural capital to explain the spatial distribution of cultural

disparities and analyse interaction with regional economic development. The empirical application is carried out on an emblematic country –Peru– a country internationally known for its historical heritage, cultural diversity, and biodiversity. Throughout its regional divisions it offers a rich and varied typology of cultural heritage, ranging from material (immovable and natural heritage) to immaterial elements (languages, traditions, festivities, etc.) as well as valuable entrepreneurial initiatives in related fields such as gastronomy, handicrafts, ethnic performing arts, etc. This work therefore offers an initial attempt to identify Peruvian cultural capital, both in terms of its distribution over the territory as well as compiling a large array of primary variables that identify cultural idiosyncrasy and that are not commonly endorsed by national accounting because they are simply cultural expressions, but which might have significant economic effects. We therefore propose a three-fold stage approach for our study purpose. First, we compile primary variables into four dimensions that give us a full picture of Peruvian cultural capital: cultural heritage resources, immaterial historical identity, cultural and creative facilities, and collective identity and entrepreneurship. Secondly –and applying multivariate techniques– we build composite indicators of cultural capital with territorial specification in order to analyse spatial distribution and disparities as well as identify macro regions with different potential and characterisation of cultural capital. Finally, we compare the results with the regional distribution of economic activity in terms of GDP and analyse the interaction and drivers between cultural disparities and economic development.

Based on these premises, the paper is divided into five sections. Following this introduction, section 2 provides a literature review on the spatial dimension of cultural capital and its economic implications. Section 3 presents the case study and the multivariate construction of composite indicators of cultural capital for Peru and its spatial distribution. Section 4 interprets and discusses the results by comparing cultural and economic disparities. Section 5 concludes.

THE SPATIAL DIMENSION OF CULTURAL CAPITAL: LITERATURE REVIEW

Since our purpose is to build indicators of cultural capital, it should be clarified that there are two interpretations in this sense. Firstly –and following Stigler and Becker (1977)– cultural capital can be considered as a personal stock that determines cultural consumption and which depends on the level of education and past consumption experiences. From this meaning emerges one of the most prolific branches of cultural economics, namely cultural participation studies (Seaman, 2006) that seeks to characterise the demand for cultural goods by considering a hypothesis of rational addiction based both on the learning acquired through previous consumption experiences and on the level of human capital, which includes

general education and specific training. However, if we address culture as a determinant of human progress in general, or of a part of economic flows in particular, we should consider cultural capital as a version of the capital stock of an economic system, i.e., as an input. In this way –and following Throsby (1999)– we can define cultural capital as a set of tangible and intangible elements that are an expression of a society's ingenuity, history or identification process, and that can be understood as a fixed resource, an asset that yields income in the form of a flow of derived goods and services, and that can depreciate if not cared for, or that can accumulate if improved and invested in. As an input, cultural capital is an economic phenomenon, as it intervenes in the production function of an economy and has alternative uses and a substitution character with other options or resources. It is therefore susceptible to collective evaluation and choice because of its contribution to the economic development of a society.

Our working hypothesis is therefore (i) that the stock of cultural capital in a territorial area is a result of the cultural identity accumulated throughout history and expressed in the form of a broad and diverse legacy of cultural heritage, and also of the set of initiatives, activities and cultural endowments in this field to date; (ii) that it has a significant impact on economic growth and well-being; and (iii) that it has been modelled in a differentiated way over time, giving rise to territorial inequalities closely related to economic disparities. Here, we take up the explanations based on the centre-periphery model (Myrdal, 1957) to understand the origin and maintaining of spatial disparities in this field: rich regions and countries have a dynamic and productive cultural sector, while less developed regions and countries have a more meagre and not very dynamic cultural sector.

The channels through which cultural capital can impact local economic development are essentially threefold. Firstly, it is able to determine part of the short- and long-term economic flows associated both with cultural and creative activity itself, and specially part of the derived flows from tourism related to cultural attractions. (Figueroa et al., 2018; Patuelli et al., 2013). Secondly, cultural capital has an impact on the concentration and quality of human capital, not only because cultural amenities and a skilled environment may attract talent (Backman & Nilsson, 2016; Falck et al., 2011; Machado et al., 2013) but also because skills and entrepreneurship take on a more creative and versatile profile (Woronkowick, 2021). Finally, cultural capital affects the efficiency with which the remaining production factors are used and also contributes to the increase in the total productivity of the economic system. However, the mere existence thereof is not enough; it must be fertilised by creativity and by an environment of innovation (Cerisola, 2018; Cerisola & Panzera, 2021). It is also important to have a critical mass of cultural capital because, only when its presence in the economy is sufficiently pervasive and exceeds human capital does culture truly become an engine of economic growth (Bucci et al., 2014).

BUILDING CULTURAL CAPITAL INDICATORS IN PERU: METHODOLOGICAL APPROACH AND APPLICATION

Approach and data

Grounded on these premises, our approach to compute cultural capital indicators is based on a multidimensional notion, but with two differential characteristics compared to other related works. First, we aim to characterise a region's cultural capital by considering elements that have no explicit value in current national accounts because they are simply cultural expressions, and second, these components reflect regional cultural identity and societal background, not only from an anthropological point of view but from the mass of inherited cultural resources -material, intangible, and collective. With this, we aim to contribute to the discussion and computation of missing capital (Coyle & Wdowin, 2025), i.e., those resources that are difficult to compute due to the absence of any exchange value in the market, but which generate economic externalities that are difficult to compute. Our proposal aims to build comprehensive cultural capital indicators with a territorial reference, as they are based on the compilation of numerous primary variables from different cultural capital profiles that do not usually appear in national accounts because they are simply cultural expressions referring to a territorial entity. We therefore focus on a more specific meaning in the field of arts and cultural manifestations with a symbolic and aesthetic significance. These are the two novelties we contribute, and on the basis of this approach, the cultural capital of a region can in our opinion be explained from four dimensions of identity (Herrero 2017; Herrero et al., 2023). Namely:

I. Dimension of territorial identity. This refers to the main endowments of natural and cultural resources of a region, or a mixture of both as a result of human intervention and creativity. It is about defining the idiosyncrasy of a territory on the basis of its existing physical endowments.

II. Dimension of historical identity. It aims to synthesise the accumulated and immaterial cultural peculiarity of a society, which can be expressed through historical commemorations, civic and religious festivities and celebrations, cultural routes, manifestations of intangible cultural heritage, etc. In this case, it is a matter of seeking the branding of the territory as regards intangible expressions, which are also accumulated through generations.

III. Dimension of cultural identity. This refers to the number and scope of cultural institutions and initiatives in this field. They constitute a factor of identity in that they reflect the capacity for decision making and interaction of individuals with their cultural environment, but also express the dimension of their cultural activity and institutions.

IV. Dimension of collective cultural identity. Cultural capital is considered here as a relational factor which is expressive of the scope and variety of social

and corporate networks in the cultural sphere, the level of education in artistic specialties, and the accumulation of talent.

By compiling primary variables in these four dimensions of characterisation, we aim to ensure that the derived composite index of cultural capital is comprehensive and exhaustive, as it seeks to compile all possible profiles of cultural capital, with an explicit territorial reference. We do not seek to measure the value of cultural capital, but rather the intensity with which it manifests itself in each territorial entity. Therefore, our purpose is to adapt this approach to the reality of Peru, following the pattern of Figure 1: firstly, by compiling as many primary variables as possible to characterise each of the specified dimensions of cultural capital, which can then be aggregated into more operational variables with which to finally construct synthetic indicators of cultural capital. Compilation has proven exhaustive and laborious, firstly because we have sought to gather primary indicators that do not mean a score in national accounting, but simply identity records; secondly because they had to be obtained with territorial specification, which is not always easy –particularly in the case of those referring to the administrative division of Peru, i.e., 25 regions; and thirdly, because it has entailed consulting different sources of information, considering the thematic diversity and institutional origin of the variables. Table A1 in the Annex shows a total of 40 variables collected, all referring to 2019, together with the source of information. However, to make the estimation model more operative and avoid repetitive information in the estimations, 26 summary variables have been established, as shown in Table 1. These are the ones which will characterise the dimensions of cultural capital and that will make up the subsequent composite indicator.

Figure 1.
Characterisation of Peruvian cultural capital

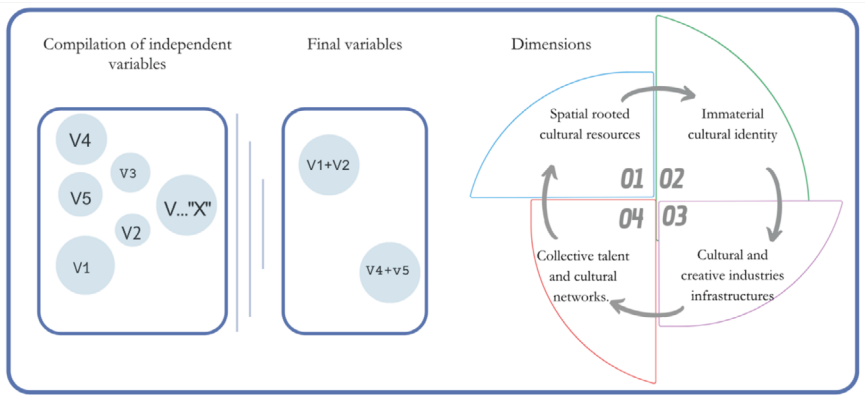


Table 1.
Primary variables and dimensions of cultural capital

Primary variables	Final variable	Dimensions
Immovable historical heritage	Cultural heritage endowments	Spatial rooted cultural resources
Immovable archaeological heritage		
Properties inscribed on the World Heritage List		
Registered movable cultural assets	Movable cultural heritage	
National Parks National Reserves National Sanctuaries Cultural Landscapes	Protected natural areas	
Protected designation of origin	Appellations of origin	
Collective marks		
Typical dishes, beverages & sweets registered	Gastronomy	
Carnivals	Historical events and commemorations	Immaterial historical identity
Religious festivities		
Festivals and fairs		
Traditional ceremonies Rites Festivities	Manifestations of intangible cultural heritage	
Languages	Linguistic diversity	
Presence of indigenous or native peoples	Multiculturalism	
Indigenous peoples' localities	Indigenous location	
Museums	Museums	Cultural institutions and Creative Industries
Theatres and scenic and musical venues	Theatres	
Cultural centres	Cultural centres	
Municipal public libraries	Libraries	
Archives, documentary heritage	Archives	
Bookstores	Book industry	
Publishers		
Cinemas	Cinemas	
Radio stations	Radio	
Television stations	Television	

(*Continued*)

Primary variables	Final variable	Dimensions
Creative cities	Cultural awards and prizes	Collective talent and cultural networks
Economic incentives for culture		
Universities (Talent / Creativity)	Universities	
Cultural and sports foundations	Cultural networks	
Culture Points. Non-profit communities for art and culture	Non-profit cultural participation	
Safety and security	Safety	
Population with higher education (%)	Education	
Literate population (%)	Literacy	

Characterisation of cultural capital vectors –adapted to the reality of Peru– is as follows. The first dimension is closely related to the territory, as it includes the whole cultural heritage inherited from previous generations in the form of rooted cultural endowments, together with outstanding natural spaces, which also characterise the peculiarity of an area. We also consider a combination of natural resources and cultural creativity in the form of the number of *appellations* of origin as well as typical dishes, and registered drinks and sweets, as a way to consider gastronomy as a kind of cultural creativity, because it represents the human capacity to produce and operate with natural resources on the basis of accumulated cultural and technical knowledge as well as permanent creative innovation. The second dimension is characterised by the intangible culture of the people and regions. Within this dimension we consider carnivals, religious festivities, festivals and fairs that take place throughout the country. We also take account of the most traditional manifestations of immaterial heritage linked to indigenous heritage, such as the array of languages, the presence of native peoples, and the number of localities of indigenous inhabitants. The third dimension specifically deals with cultural facilities and institutions accumulated over time, since it reflects the number of active cultural heritage institutions (museums, archives and libraries), performing arts (theatres, auditoriums) and cultural industries (publishing and communication). All these variables are indicators of cultural infrastructures but are also an expression of the capacity of both individuals and society for entrepreneurship and interaction with cultural heritage, and in a certain way also measure the level of cultural activity in the region[1]. Finally, the fourth dimension captures a notion of collective cultural identity in the form of accumulated talent, networks of associations and

[1] This dimension might cover variables that are closer to national accounting, as they deal with operating institutions. However, they are in no way represented by their volume of business, but simply by their degree of presence in a region. They are therefore pure indicators of cultural facilities, which are in turn the result of accumulated cultural initiatives (public or private) and can also demonstrate, on the demand side, a degree of cultural participation.

foundations, points of cultural community participation and population characteristics (education and safety).

These are our four interrelated dimensions, with particular characteristics and each is related to different forms of cultural capital: two of the dimensions are mainly related to people (dimensions 3 and 4) while the other two are more strongly related to material and endowment (dimensions 1 and 2). We consider this classification to represent all the relevant aspects of the country's cultural capital in a broad scope. Table 2 presents the descriptive statistics for all the variables finally considered when characterising cultural capital.

Table 2.
Descriptive statistics of primary variables

Variables (*)	Mean	Median	Stand. Dev.	Range	Sum
Cultural heritage endowments	751.7	475	846.26	3,834	18,792
Movable cultural heritage	12,566	1,426	44,698.73	225,632	314,154
Protected natural areas	9.96	6	10.949	44	249
Appellations of origin	227.8	198	212.16	902	5,695
Gastronomy	9.72	3	24.06	123	243
Historical events & commemorations	14.32	8	16.27	58	358
Manifestations of intangible heritage	17.08	13	12.56	50	427
Linguistic diversity	4.52	2	7.35	33	113
Multiculturalism	4.24	2	6.67	30	106
Indigenous location	2,676	1,800	3,426.01	12,874	66,905
Museums	12.64	9	15.37	76	316
Cultural centres	4.32	1	12.67	64	108
Theatres	2.36	0	7.36	37	59
Libraries	19.68	15	16.71	70	492
Archives	2.16	1	2.81	12	54
Book industry	9.6	2	34.78	176	240
Cinemas	2.24	1	7.11	36	56
Radio	110.1	90	68.82	234	2,752
Television	45.76	36	27.21	113	1,144
Cultural awards and prizes	11.84	3	41.84	212	296
Universities	3.8	2	7.03	36	95

(*Continued*)

Variables (*)	Mean	Median	Stand. Dev.	Range	Sum
Cultural networks	4.64	1	14.78	75	116
Non-profit cultural participation	2.32	1	5.77	29	58
Safety	1E+05	4,47	265,001.80	1E+06	2,934,06
Education	47.05	46.3	11.87	38.12	1,176.3
Literacy	90.9	92.26	5.96	19.88	2,272.47

(*) Measurement units based on Table A1.

Building partial indicators of cultural capital for Peru

Since we are considering a multidimensional notion of cultural capital, our purpose is to summarise the information from primary variables into synthetic indicators of cultural capital. The use of synthetic indicators has become increasingly popular, and their use in the field of cultural economics is widespread, particularly with territorially-based applications such as indices of cultural quality and performance (Gómez & Herrero, 2019; Srakar et al., 2017), creativity and talent (Boal & Herrero, 2020; Navarro et al., 2014), well-being and quality of life (Herrero et al., 2019; Nissi & Serra, 2016), etc. The methodological approach followed in our case study uses multivariate analysis, both to build a composite index of cultural capital through factorial analysis and to identify macro-regions that have a similar concentration of capital, through cluster analysis. We then follow a BoD hypothesis, i.e., letting the data speak for itself, as we are not considering any weight or ex-ante determinism criterion[2].

Table 3.
Factor analysis: Extraction of main components

	Initial Extraction Eigenvalues			Rotation Varimax		
Component	Total	% Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.8	54.444	54.444	9.261	51.452	51.452
2	3.067	17.036	71.481	3.123	17.348	68.8
3	2.584	14.357	85.838	3.067	17.038	85.838
4	0.849	4.719	90.556			
5	0.556	3.088	93.644			
6	0.341	1.897	95.541			
7	0.321	1.783	97.323			

(*Continued*)

[2] There are interesting alternatives for building synthetic indicators of cultural capital using data envelopment analysis (DEA) (Herrero et al., 2019, 2023). However, we have opted to provide a homogeneous approach within multivariate statistical analysis, using factor analysis to build the composite index and cluster analysis to determine homogeneous areas.

	Initial Extraction Eigenvalues			Rotation Varimax		
Component	**Total**	**% Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
8	0.203	1.13	98.454			
9	0.098	0.545	98.999			
10	0.094	0.524	99.522			
11	0.034	0.189	99.711			
12	0.019	0.105	99.816			
13	0.013	0.075	99.891			
14	0.008	0.044	99.934			
15	0.005	0.027	99.961			
16	0.004	0.022	99.984			
17	0.003	0.016	99.999			
18	0	0.001	100			

Multivariate factor analysis consists of a synthetic representation of primary information through factorial axes that are a linear combination of the original variables and that are independent of each other, which facilitates interpretation (Nardo et al., 2008). It basically involves three stages: extraction of factors, which concentrate most of the primary information measured in terms of variance; rotation, which consists of a transformation (orthogonal, varimax method) of the factors to make them more interpretable; and factor interpretation by means of correlations with the original variables. Table 3 shows the factor extraction figures[3], with the eigenvalue associated with each factor in the extraction and in the rotation. Considering only the factors with an eigenvalue of over one, we then obtain three factors that summarise all the information, and which reach a percentage of explained variance of 85.8%, such that the objective of achieving a synthesis has been amply achieved. It should also be stressed that different factorial exercises were carried out wherein variables with redundant information were eliminated. This was the case for historical events and communication, education, the book industry, and cultural awards. Several other variables did not improve the analysis due to low communality or because they complicate interpretation –such that they were also removed. This included gastronomy, appellations of origin, safety and non-profit cultural entities. As robustness tests of the result, all communalities can be said to be high, above 0.6 (Table 4) and both the KMO measure of sampling adequacy and Bartlet's test of Sphericity yield favourable results. Finally, the most refined

[3] It should be noted that factor analysis has been applied to the full set of primary variables as a whole, rather than on a dimension-by-dimension basis, as the tests conducted in this option provide less robust results. Nevertheless, the interpretation of the factors will prove to be quite accommodating to the established notions of cultural capital.

presentation in accordance with the research purposes was adjusted to 18 primary variables, as shown in Table 4.

Table 4.
Factor analysis: Variable communalities and correlations with factors

Final Variables	Communality	Factor 1	Factor 2	Factor 3
Cultural centres	0.980	0.989		
Cultural network	0.975	0.987		
Cinemas	0.975	0.885		
Universities	0.963	0.980		
Theatres	0.960	0.979		
Movable cultural heritage	0.958	0.978		
Museums	0.924	0.928		
Cultural heritage endowments	0.783	0.815		
Archives	0.810	0.783	0.437	
Libraries	0.753	0.671	0.538	
Literacy	0.607	0.324	- 0.708	
Radio	0.759	0.525	0.695	
Television	0.865	0.655	0.660	
Intangible cultural heritage	0.811		0.886	
Indigenous location	0.807		0.398	0.791
Multiculturalism	0942			0.946
Linguistic diversity	0.945			0.943
Protected natural areas	0.636			0.767

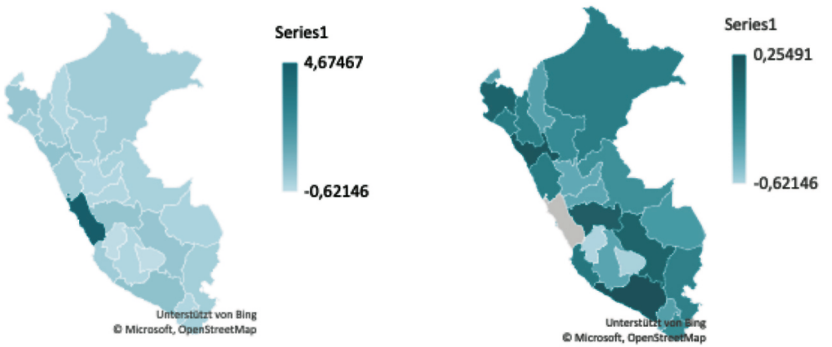
Note. Varimax Rotation. Eigenvalues > 0.3.

To interpret the main factors, we consider the correlation matrix between the factors obtained and the original variables, based on a rotated factorial solution by the Varimax method, which facilitates analysis (Table 4). In the interpretation, we take into account the correlations that contribute most to define the factor (factor loadings greater than 0.3) and pure factor variables, those whose factorial weight resides mainly in only one factor. The factors are thus defined as follows.

The first factor groups the largest number of variables, both the endowments of cultural heritage, public institutions and centres providing cultural goods and services, and also the main industries and enterprises in the cultural sector. We call this factor *concentration of cultural resources* as it represents the most classical and ordered meaning of cultural capital, focused on endowments, institutions and entrepreneurship. Logically, the spatial distribution follows what seems to be a faithful representation of Peruvian reality, which is the almost absolute

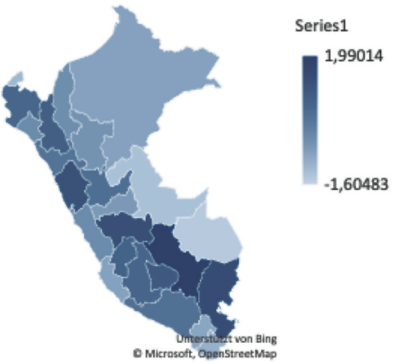
concentration of cultural capital in Lima. For this reason, we decided to represent the geographical distribution of the factor in the country with and without the capital of the State (Figure 2), which therefore displays other departments with the main cities of Peru: Arequipa, Junín, Cuzco, and La Libertad. This confirms that it is a factor associated with the most populated, most urban areas and those with higher levels of development.

Figure 2
Factor of cultural resources and institutions



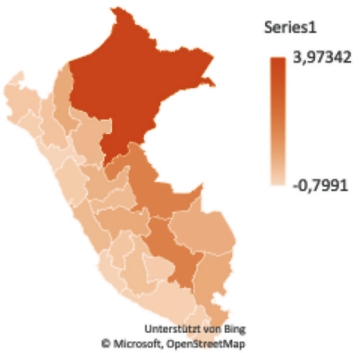
The second main factor identifies intangible cultural heritage and the location of indigenous peoples as pure factor variables, although it also has high correlations with classical heritage institutions (archives and libraries) and radio and television entities. It also shows a high negative correlation with the literacy rate, indicating the existence of significant illiteracy rates. The distribution of this component (Figure 3) –called *the intangible heritage factor*– is related to the location of the great Andean civilisations and the intangible legacy of present-day peoples; hence its location in the highland departments of Peru (Cuzco, Puno, Junín, Ancash, Cajamarca, Apurimac, Huancabelica).

Figure 3.
Factor of immaterial heritage



Finally, the third factor exclusively groups variables related to ethnic, linguistic and natural protected area diversity, and also correlates significantly with the location of indigenous peoples. This factor is strongly related to indigenous heritage and biodiversity in Peru, and is identified with the departments of the Peruvian Amazon (Loreto and Uyancali) (Figure 4).

Figure 4.
Factor of ethnic diversity



A composite index of cultural capital

Given the thematic complementarity of these three factors –which in essence clearly allude to the main underlying concepts of the dimensions of cultural capital defined in the introduction– it seems justified to elaborate a composite indicator based on these factors, and which serves as a synthetic definition of the cultural capital of the regions, understood as a stock of their present and accumulated cultural identity. We opted for one of the simplest and most comprehensible versions to construct a composite indicator: namely through a weighted average of the main factors according to the weight of each of them when explaining total variance. In other words, each component is multiplied by its own eigenvalue in the rotated solution of the factor extraction process (Table 3). To mitigate the impact of the first factor and obtain a more balanced representation –if possible– the square root of the eigenvalues was used, in accordance with the following formula:

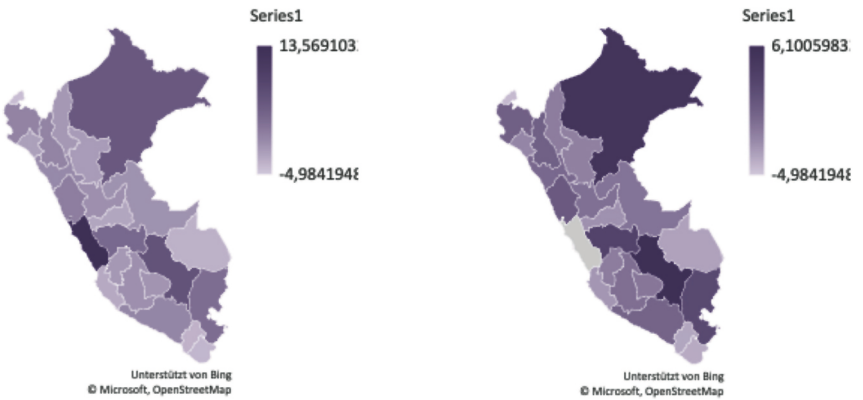
$$ICC = (F1 * \sqrt{\text{Eigenvalue 1}}) + (F2 * \sqrt{\text{Eigenvalue 2}}) + (F3 * \sqrt{\text{Eigenvalue 3}})$$

Both the scores of the main factors and the values of the composite indicator for each region of Peru can be found in Table A2 in the Annex. Figure 5 shows the geographical distribution of the synthetic index of cultural capital. A strong concentration can be seen in the departments of Lima, Cuzco, and Loreto. Each corresponds to a natural region of the country: coast, mountains and jungle, respectively. In

Lima –as in many state capitals in Latin America– cultural and creative industries are concentrated, as well as cultural public services related to the first factor. Cuzco, the former capital of the Inca Empire, is the central point of the archaeological and intangible heritage area of the Peruvian Andes. Loreto, which is the most important department of the Peruvian Amazon, has a strong concentration of intangible heritage, ethnic, and linguistic diversity. The remaining departments have different levels of cultural capital, even though they show a certain concentration in the coastal and highland regions.

Figure 5.

Regional distribution of the composite index of cultural capital



Regional heterogeneity of cultural capital: Cluster analysis

As a final step, a confirmatory analysis of the results was carried out by applying cluster analysis to the original data in order to obtain homogeneous spaces in the regional distribution of cultural capital in Peru. The k-means method is followed based on the similarity of data vis-à-vis the centroids of each group by means of Euclidean distance. The process iterates until the centroids stabilise, assigning each value to the nearest cluster. The number of clusters was determined through iterative analysis until the most reasonable interpretation was found. The optimal number of homogeneous groups was finally six, whose geographical representation is shown in Figure 6. By comparing the means of the variables of the analysis and the factor scores for each of the clusters, the following characterisation is reached.

Figure 6
Cluster analysis of cultural capital in Peru

Cluster 1: Amazon macro-region. It comprises the six departments of the Peruvian jungle (Loreto, Ucayali, Madre de Dios, Pasco, San Martin, and Amazonas), whose common characteristics are its great ethnic and linguistic diversity and the presence of indigenous peoples, all settled in large protected natural areas, which are fundamentally the properties of characterisation factor 3. It is a natural region renowned for its tropical climate and multicultural population, which does not have highly developed cultural endowments, while the manifestations of intangible heritage have not been as well recognised as in the highland departments due to problems of access and the presence of indigenous peoples in voluntary isolation.

Cluster 2: Macro-region Sierra Transversal. It comprises six highland departments and two coastal departments: Puno, Apurimac, Ayacucho, Huancavelica, Junín, Junín, Áncash, Cajamarca, and Piura. It is characterised by expressions of intangible heritage and significant tourism potential. These are the geographical areas where the main Inca and pre-Inca civilisations settled. There seems to be a link between the intangible heritage of these peoples and the cultural manifestations of the current populations of these areas. This macro-region presents positive values in factor 2, but negative values in factors 1 and 3.

Cluster 3: Costa Chica macro-region. It comprises three coastal departments: Arequipa, Lambayeque, and La Libertad. These are populated departments with a high concentration of infrastructure and cultural service institutions, but also with a relevant presence of intangible heritage and tourist attractiveness, which is why they score positively in characterisation factors 1 and 2.

Cluster 4: Macro-region of Peruvian highland capitals. It comprises the departments of Ayacucho and Cuzco, whose capitals are recognised for their cultural

and tourist attractiveness. In the case of Cuzco, this is the geographical area where the capital of the largest pre-Columbian civilisation in South America, the Inca Empire, was established. The heritage of this civilisation is palpable in the type and number of manifestations of tangible and intangible heritage, which are widely recognised and attractive for tourists. On the other hand, Ayacucho is the only creative city in the Peruvian highlands declared by UNESCO for its diversity in handicrafts and manifestations of intangible heritage, such as Holy Week and others.

Cluster 5. Central Coast macro-region. These are the two departments (Lima and Ica) on the Peruvian coast with the highest concentration of cultural activity and cultural institutions in the country. They are areas with little indigenous presence and manifestations of intangible heritage, but which concentrate almost all the infrastructure of the nation's cultural capital: both cultural and creative industries, cultural entrepreneurship initiatives and foundations, universities and higher education centres, as well as a large part of public cultural institutions. As the most populated areas, they are also home to numerous cultural service entities (museums, theatres, cinemas, etc.).

Cluster 6: Peripheral macro-region and Callao. These are the three departments furthest from the capital and with the lowest concentration of cultural capital in general: Tacna, Moquegua, and Tumbes. The Constitutional Province of Callao is included in this cluster.

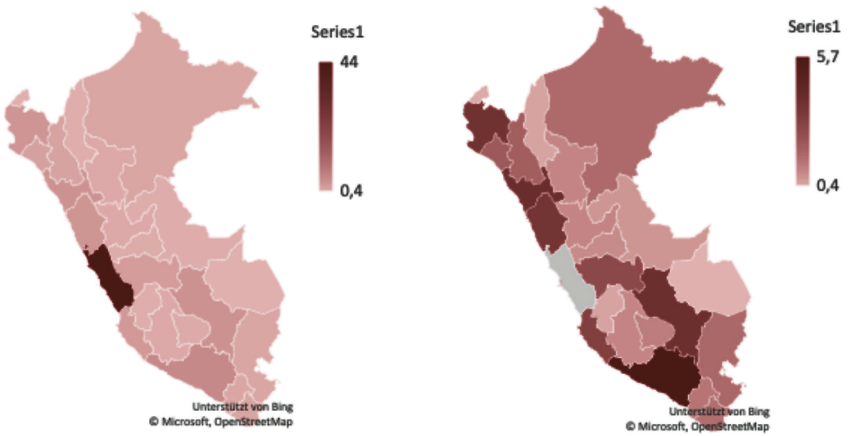
ECONOMIC AND CULTURAL DISPARITIES IN PERU: DRIVERS AND DISCUSSION

Considering that our elaboration of the cultural capital index is not limited to the distribution of monuments and cultural endowments –tangible and intangible– but that it also considers the agglomeration of cultural institutions, cultural and creative entrepreneurship initiatives, concentration of talent and training, corporate networks in this field, etc., all these issues are closely related to the concept of economic development in a broad sense. Therefore, it is now a question of testing the relationship between the regional distribution of cultural capital and spatial economic disparities in Peru.

As a first approach, Figure 7 shows the mapping of regional GDP levels. As expected, there is a high concentration in the department of Lima, which for reasons of over-dimension has been excluded from the map in its second version, followed by the regions of Arequipa, La Libertad, Cuzco, Piura, Junín, Ica, and Ancash, which also show significant levels of GDP. Generally, the distribution of economic development is concentrated on the coastal regions and central highlands, which coincide with the most populated areas and the most active capitals. In general, there is a distribution of economic development concentrated in the regions of the coast and central highlands, which coincide with the most populated areas and the most active capitals, while there are large areas of the country that

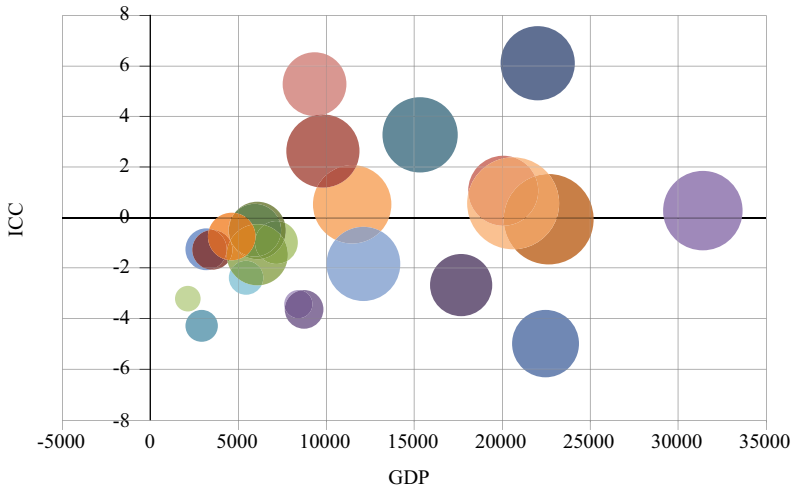
make little contribution to GDP, such as the Amazon and the northern and western highlands. If we compare this with the distribution of the composite indicator of cultural capital, ICC (Figure 5), we find certain similarities in terms of the concentration of cultural capital in these same GDP-leading regions. However, this actually follows the cultural capital profile of characterisation factor 1, i.e., accumulation of infrastructure, public institutions and cultural services as well as creative industry and cultural centres. However, there is one difference that merits highlighting since, in fact, the ICC detects two complementary areas of cultural capital accumulation that refer, fundamentally, to the manifestations of intangible heritage and ethnic and linguistic diversity, which are located in less developed areas and contribute less to GDP: namely, the highland and Amazonian jungle regions, respectively.

Figure 7.
Regional distribution of GDP in Peru



This is a novelty of the results of this research, as it corroborates that there is a part of cultural capital that –interacting with the demand for cultural goods and services and in particular as exploiting tourist use and appeal– generates significant economic flows and contributes to the economic development of the territories. However, there is another profile of cultural capital, identified in our case with expressions of intangible heritage, ethnic and linguistic diversity, and to a certain extent combined with natural resources and biodiversity, which are more difficult to turn into consumer goods and services, and which for the moment perhaps have less tourist appeal, as they are fundamentally features of collective and individual cultural characterisation in certain territories. The justification for protecting this profile of cultural capital is beyond doubt, even more so because of the risk of extinction or trivialisation.

Figure 8.
Scatter plot of Peru's regions based on GDP, ICC, and population



Source: Based on data from Table A2. Lima is excluded for the sake of clarity.

Figure 8 shows the scatter plot of Peru's regions based on three variables, ICC and GDP on the axes, and regional population in the size of the ball. The interpretation complements and confirms the previous results, as we can distinguish, in general terms, four groups of regions: (a) more populated regions with high GDP but with a cultural capital index that is not very relevant (Arequipa, La Libertad, Piura, Áncash); (b) relatively populated regions with an intermediate level of GDP and a low level of cultural capital (El Callao, Ica, and Lambaleque); (c) populated regions with a high intermediate GDP and a high cultural capital index (Cuzco, Junín, Puno, and Loreto); and (d) poorly populated regions with a low level of development and scarce cultural capital (Tacna, Tumbes, Madre de Dios, San Martín). To detect possible effects of spatial autocorrelation, Moran's index was calculated for regional distribution data for GDP, ICC, and factors F1 to F3. Only the indices for ICC and F1 were significant, but with negative values close to zero (-0.312 and -0.1509 respectively), while F3 had a positive value (0.2161). This indicates that areas with strong intangible identity and ethnic diversity tend to be grouped together, while regions with some indicators of cultural capital are disparate.

As a complement to the approach of this research, we estimate the correlations (Pearson, Spearman and Kendall) between the synthetic indicator of cultural capital and certain explanatory variables that we consider to be key drivers according to comparative literature (Backman & Nilson, 2016; Bucci et al., 2014; Falck et

al., 2011); namely, GDP per capita, population size and human capital, to which we add other variables excluded from the factor analysis and that may also be of interest now. These are safety levels (number of crimes), cultural talent awards, gastronomy variables and designations/*appellations* of origin, and finally the number of historical events and commemorations (carnivals, religious festivities, festivals and fairs), which are a version of intangible cultural heritage. The results are shown in Tables 5 to 7, and the following can be highlighted.

First, the ICC is logically correlated with the characterisation factors (F1 to F3), but not between them, as they are linearly independent. The ICC indicator is positively correlated with GDP, population size and with the complementary cultural capital variables, as expected. There is no significant relationship with the level of human capital (percentage of population with higher education), although there is in the characterisation factors –positively with F1 and negatively with F2 and F3– showing the duality in the distribution of cultural capital: institutional profile and cultural goods and services are consolidated in populated and more developed areas, whereas intangible profile and ethnic diversity are associated with less populated areas and lower ratios of education. This is also the case for safety (number of crimes), which only has significant and positive correlations with ICC and F1. As for the complementary cultural capital variables that we add, all have only positive correlations with ICC and F1, except for intangible events and *appellations* of origin, which mainly affect F2. This implies that the cultural awards and gastronomy variables are also associated with the institutional and market-oriented cultural capital profile and areas.

CONCLUSIONS

Culture, understood in a broad sense as a set of tangible and intangible elements that are the expression of the ingenuity, history or identity of a society, can be considered as a production factor capable of determining part of the economic flows within a region and also its possibilities for long-term economic development. We aim to estimate the stock of cultural capital in the regions of Peru, a country internationally known for its historical heritage, cultural diversity and biodiversity, on the basis of the above wide-ranging notion of cultural heritage, which can consequently be broken down into four perspectives: cultural heritage resources, immaterial historical identity, cultural and creative facilities and institutions, and collective identity and networks. Part of the novelty of this proposal lies in compiling a large and diverse set of elements that identify the idiosyncrasy and cultural capital of regions, and which are not commonly endorsed by national accounting because they are simply cultural expressions and characterisations, but which might no doubt have significant economic effects. We have also sought to consider a territorial specification of these indicators in order to analyse spatial disparities in cultural resources and their relationship with economic imbalances.

Table 5.
Pearson correlation matrix. Regional analysis

Variables	ICC	Fact 1	Fact 2	Fact 3	GDP	Inhabitants	Higher Education	Safety	Cultural Awards	Gastronomy	*Appellation* Origin	Events
ICC	1											
Fact 1	0.7742***	1										
Fact 2	0.4496**	0	1									
Fact 3	0.4455**	0	0	1								
GDP	0.7457***	0.9909***	0.0002	-0.0484	1							
Inhabitants	0.7905***	0.9876***	0.0786	-0.0213	0.9848***	1						
High Education	-0.0201	0.4021**	-0.4927**	-0.2468	0.4072**	0.3173	1					
Safety	0.7244***	0.9898***	-0.0339	-0.0599	0.9957***	0.986***	0.3977**	1				
Cult. awards	0.7359***	0.9858***	-0.0357	-0.0254	0.9926***	0.9759***	0.3659*	0.9912***	1			
Gastronomy	0.7567***	0.9878***	-0.0221	0.0043	0.9883***	0.9801***	0.3698*	0.9883***	0.9865***	1		
App. Origin	0.2607	0.1501	0.4286**	-0.1082	0.0904	0.1508	0.0456	0.0848	0.0686	0.0529	1	
Events	0.6412***	0.5684**	0.4366**	0.0109	0.5465***	0.5721***	0.1549	0.5482***	0.4981**	0.5479***	0.3124	1

Note. ***. ** . * denote statistical significance at 1%, 5%, 10% respectively.

Table 6.
Spearman correlation matrix. Regional analysis

Variables	ICC	Fact 1	Fact 2	Fact 3	GDP	Inhabitants	Higher Education	Safety	Cultural Awards	Gastronomy	*Appellation* Origin	Events
ICC	1											
Fact 1	0.5454***	1										
Fact 2	0.6977***	0.2169	1									
Fact 3	0.5692***	-0.0415	0.2685	1								
GDP	0.4823**	0.8285***	0.3123	-0.2546	1							
Inhabitants	0.7169***	0.8323***	0.5000**	0.0254	0.8577***	1						
High Education	-0.2997	0.3893*	-0.5078***	-0.4278**	0.3712*	0.0296	1					
Safety	0.3838*	0.8477***	0.1223	-0.2208	0.8200***	0.8423***	0.3335	1				
Cult. awards	0.5310***	0.8113***	0.3176	-0.1318	0.9011***	0.8599***	0.2401	0.7293***	1			
Gastronomy	0.4975**	0.8215***	0.1154	-0.0801	0.6729***	0.6930***	0.3137	0.7286***	0.5754***	1		
App. Origin	0.4100**	0.4785**	0.5054**	0.0700	0.3985**	0.5092***	-0.0100	0.3462*	0.5120***	0.2304	1	
Events	0.4700**	0.5362***	0.5212***	0.0208	0.5378***	0.5643***	0.0772	0.4919**	0.3794*	0.5721***	0.4064**	1

Note. ***. ** . * denote statistical significance at 1%, 5%, 10% respectively.

Table 7.
Kendall correlation matrix. Regional analysis

Variables	ICC	Fact 1	Fact 2	Fact 3	GDP	Inhabitants	Higher Education	Safety	Cultural Awards	Gastronomy	*Appellation* Origin	Events
ICC	1											
Fact 1	0.3467**	1										
Fact 2	0.5800***	0.1267	1									
Fact 3	0.4200***	-0.0200	0.2133	1								
GDP	0.3267**	0.6600***	0.2267	-0.1867	1							
Inhabitants	0.5200***	0.6267***	0.3133**	0.0200	0.6733***	1						
High Education	-0.2237	0.2771*	-0.3506**	-0.3105**	0.2705*	0.0434	1					
Safety	0.2667*	0.6800***	0.0867	-0.1400	0.6600***	0.6533***	0.2504*	1				
Cult. awards	0.3612**	0.6208***	0.2280	-0.0947	0.7681***	0.7120***	0.1897	0.5787 ***	1			
Gastro-nomy	0.3450**	0.6418***	0.0759	-0.0345	0.5106***	0.5106***	0.2246	0.5590***	0.4284***	1		
App. Origin	0.2867**	0.3133**	0.3733***	0.0267	0.2933**	0.3667**	0.0100	0.2733*	0.3963***	0.1518	1	
Events	0.3474**	0.3474**	0.3407**	-0.0034	0.4014***	0.4081***	0.0811	0.3474**	0.2910*	0.4190***	0.3002**	1

Note. ***. ** . * denote statistical significance at 1%, 5%, 10% respectively.

In this way –and in the empirical application to the reality of Peru– a notable effort has been made to compile primary indicators, which have been synthesised using multivariate statistical analysis into three main characterisation factors. These tie in well with the notions of accumulation of cultural resources, infrastructures and institutions, expressions of intangible cultural heritage, and ethnic and biodiversity heritage, respectively. Subsequently, a composite index of cultural capital is constructed by weighted aggregation of the above factors according to their importance, i.e., following non-deterministic assumptions and allowing the data to explain themselves naturally. The geographical distribution of the cultural capital index follows an eminently concentrated pattern, with the highest levels being found in the metropolitan region of Lima, the Andean department of Cuzco, and the Amazonian region of Loreto. A more detailed analysis, excluding the oversized effect of Lima, indicates a somewhat greater distribution of cultural capital levels in the coastal and central highland departments. Confirmatory analysis was carried out using cluster analysis, which led to a classification in six macro-regions that group together departments which are homogeneous in terms of cultural capital endowment and characterisation.

In general terms, it can be said that there are several profiles of cultural capital, with different patterns of localisation and iteration with economic development. First, a profile of accumulation of cultural resources and institutions providing related goods and services, which are eminently located in the most developed and populated areas of the country, thus displaying a common pattern of spatial concentration and endowment distance from other regions. On the other hand, another profile of cultural capital can also be distinguished, identified with expressions of intangible heritage and ethnic diversity, linguistic richness, and protected natural ecosystems. This profile rather characterises the peripheral and less developed regions. Consequently, a positive correlation is found between this first market-oriented cultural capital profile with GDP, level of human capital and population density, as well as with any cultural entrepreneurship initiatives. Conversely, the profile of ethnic diversity and inherited intangible heritage –as a factor of individual and collective characterisation– is not likely to be easily turned into market goods and services, or at least they do not have enough tourist appeal for the moment as material cultural heritage resources. It therefore has less capacity to generate economic activity and hence a lower interaction with the degree of economic development and the capacity to generate growth.

Consequently, it seems clear that cultural capital –insofar as it can become or produce goods and services for demand– generates flows and economic activity and can determine part of economic development. This is evident in Peru; not only in the more developed areas, where the institutional cultural sector and the cultural and creative industries are established (Lima and coastal regions) but also in areas with a wealth of monumental or archaeological heritage which, due to their ability to attract tourists, become a profitable and vibrant sector of economic activity (Cuzco, Puno and Junín). However, when cultural capital is purely a matter of ethnic

characterisation, linguistic wealth or inherited intangible expressions, it has less chance of becoming market products and, therefore, sees less economic interaction (Amazon regions such as Loreto and Ucayali).

This result should not lead to erroneous conclusions of prioritising one profile over the other. On the contrary, it should lead us to try to safeguard both, in the medium and long-term, where the main threats may come from both the risk of extinction and trivialisation due to overexploitation. This research has sought to recognise these cultural capital profiles and to explain their relationship with regional economic disparities in Peru. It can also serve as inspiration for public policies to protect and promote cultural heritage, whilst remaining aware that heritage is a key driver of economic growth when it produces market goods and services under entrepreneurial initiatives. However, this does not underestimate the need to also protect less profitable cultural heritage, since in essence it constitutes inalienable wealth, which is in danger of disappearing. The same risk can also arise from the overexploitation of the most attractive resources, i.e., their trivialisation. This is why public policies must consider this dual profile of cultural capital, and this dual sense of sustainability. Cultural heritage that is at risk of extinction must be protected through documentation and registration standards as well as through a legal framework to safeguard it against the risk of loss, damage or deterioration. However, as much of this cultural heritage is intangible and ethnic in nature, support for the communities that keep it alive is crucial. Here, collective management of communal resources has proven to be more efficient than the market or public intervention. In addition, cultural policy must also address the risks of trivialisation and overexploitation of profitable cultural heritage. Controlling tourist flows through prices, tolls, and taxes does not seem to contain demand at very iconic sites. However, there is an opportunity to control supply by limiting the excessive increase in tourist accommodations and services, ensuring cultural identity standards at heritage sites, and diversifying the cultural offer to avoid passive tourism and encourage active tourism.

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ANNEX

Table A1.
Set of primary variables to characterise cultural capital in Peru. 2019

Independent variables	Sources
Immovable historical heritage	Ministry of Culture of Peru - Geoportal.
Immovable archaeological heritage	Ministry of Culture of Peru - Geoportal.
Properties inscribed on the World Heritage List	UNESCO - World Heritage List.
Protected natural areas (National parks, reserves, sanctuaries and cultural landscapes)	Ministry of Environment of Peru - List of Natural Protected Areas.
Protected designation of origin	National Institute for the Defence of Competition and Protection of Intellectual Property (INDECOPI). Interactive map of collective marks.
Collective marks	
Registered movable cultural goods	Ministry of Culture of Peru - National Platform of Open Data.
Gastronomy awards/ performances	The Complete List of Mistura Restaurants.
Typical dishes, drinks and sweets registered	Ministry of Foreign Trade and Tourism of Peru - Map of the location of tourism resources and rural community-based tourism enterprises.
Carnivals	
Patron saint religious festivities	
Festivals and fairs	
Manifestations of intangible cultural heritage (traditional ceremonies, rites and festivities)	Ministry of Culture of Peru - Statistical Information Platform of the Cultural Sector.
Languages	Ministry of Culture of Peru - Map of Indigenous Peoples of Peru.
Presence of indigenous or native peoples	Ministry of Culture of Peru - BDPI (Indigenous Peoples Database).
Indigenous peoples' localities	Ministry of Culture - Cultural Sector Statistical Information Platform.
Districts with Afro-Peruvian population.	Ministry of Culture of Peru - Vice-Ministry of Interculturality.
Museums	Inter-American Development Bank and Ministry of Culture of Peru- Atlas of Infrastructure and Cultural Heritage of the Americas - Peru
Theatres and scenic and musical venues	
Municipal public libraries	National Library of Peru - National System of Libraries.

(*Continued*)

Independent variables	Sources
Cultural centres	Inter-American Development Bank and Ministry of Culture of Peru- Atlas of infrastructure and cultural heritage of the Americas -Peru.
Archives	
Bookstores	
Publishers	
Cinemas	
Radio stations	
Television stations	
Creative cities	UNESCO - List of the creative cities of Peru.
Economic incentives for culture	Ministry of Culture -List of economic stimuli for culture, 2019.
Universities	Superintendencia Nacional de Educación Superior Universitaria
Cultural and sports foundations	Ministry of Justice and Human Rights. National Directory of Cultural and Sports Foundations of Peru.
Culture Points. Community non-profit entities for art and culture	Ministry of Culture - Statistical information platform for the cultural sector.
Safety/crime	National Institute of Statistics and Computing (INEI) - Statistics on crime reports by department.
Population with higher education (%)	Inter-American Development Bank and Ministry of Culture of Peru- Atlas of Infrastructure and Cultural Heritage of the Americas - Peru
Literate population (%)	

Table A2.
Factor scores ICC scores, GDP and population by regions of Peru

Regions	FAC1	FAC2	FAC3	ICC	GDP	Population
Amazonas	-0.36633	-0.34906	0.26897	-1.2606275	3,169	379,384
Áncash	-0.10934	1.26882	-0.48335	1.06303418	20,059	1,083,519
Apurímac	-0.60635	0.99521	-0.51361	-0.9859791	7,170	405,759
Arequipa	0.25491	0.3079	-0.60008	0.26894933	31,404	1,382,730
Ayacucho	-0.38025	0.62417	-0.25342	-0.4979494	5,932	616,176
Cajamarca	-0.12242	0.8198	-0.31807	0.51917302	11,480	1,341,012
Cusco	0.08276	1.99014	1.33146	6.10059833	22,007	1,205,527
Huancavelica	-0.62146	0.73695	-0.39044	-1.2726532	3,528	347,639
Huánuco	-0.41444	0.34574	0.07538	-0.5182153	6,081	721,047
Ica	-0.08163	-0.71941	-0.65776	-2.6716831	17,656	850,765
Junín	0.13417	1.33505	0.29071	3.27672275	15,330	1,246,038
La Libertad	0.21369	0.26335	-0.67443	-0.0654278	22,637	1,778,080
Lambayeque	-0.11215	-0.2823	-0.56919	-1.8369886	12,114	1,197,260
Lima	4.67467	-0.28606	-0.08638	13.5691033	218,040	9,485,405
Loreto	-0.13024	-0.72632	3.97342	5.2786933	9,336	883,510
Madre de Dios	-0.31037	-1.45751	0.17538	-3.2130876	2,125	141,070
Moquegua	-0.35706	-0.80124	-0.52329	-3.4189834	8,417	174,863
Pasco	-0.38975	-0.59411	-0.08895	-2.3917717	5,444	254,065
Piura	0.07584	0.5885	-0.40059	0.569246	20,626	1,856,809
Prov. Const. del Callao	-0.24602	-1.60483	-0.7991	-4.9841949	22,458	994,494
Puno	-0.15613	1.466	0.29267	2.62813246	9,804	1,172,697
San Martín	-0.21314	-0.45436	-0.01297	-1.474285	6,081	813,381
Tacna	-0.21707	-1.02757	-0.66526	-3.641568	8,737	329,332
Tumbes	-0.34726	-1.1383	-0.69665	-4.2884158	2,920	224,863
Ucayali	-0.25463	-1.30055	1.32556	-0.7517871	4,625	496,459

Note. GDP in Millions of Soles in 2019. Population in 2019.

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