

96

CUADERNOS DE ECONOMÍA

ISSN 0121-4772



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Teléfono: (571)3165000 ext. 12308, AA. 055051, Bogotá D. C., Colombia

Cuadernos de Economía Vol. 44 No. 96 - 2025

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TOWARDS PARTICIPATORY GOVERNANCE IN THE MANAGEMENT OF CULTURAL HERITAGE ECOSYSTEMS: THE COLOMBIAN COFFEE CULTURAL LANDSCAPE

Jonathan Daniel Gómez-Zapata
María José del Barrio-Tellado
Sergio Alejandro Sánchez-Martínez

Gómez-Zapata, J. D., del Barrio-Tellado, M. J., & Sánchez-Martínez, S. A. (2025). Towards participatory governance in the management of cultural heritage ecosystems: The Colombian Coffee Cultural Landscape. *Cuadernos de Economía*, 44(96), 1157-1192.

We analyse the propensity to engage in the sustainability and enhancement of a cultural heritage ecosystem –the Colombian Coffee Cultural Landscape– from a

J. D. Gómez-Zapata

Universidad Nacional de Colombia, Bogotá (Colombia). Corresponding autor. Email: jdgomezz@unal.edu.co

M. J. del Barrio-Tellado

Universidad de Valladolid, Valladolid (España). Email: mariajose.delbarrio.tellado@uva.es

S. A. Sánchez-Martínez

Universidad Nacional de Colombia, Bogotá (Colombia). Email: sesanchezm@unal.edu.co

Suggested citation: Gómez-Zapata, J. D., del Barrio-Tellado, M. J., & Sánchez-Martínez, S. A. (2025). Towards participatory governance in the management of cultural heritage ecosystems: The Colombian Coffee Cultural Landscape. *Cuadernos de Economía*, 44(96), 1157-1192. <https://doi.org/10.15446/cuad.econ.v44n96.117867>

Este artículo fue recibido el 4 de diciembre de 2024, ajustado el 20 de junio de 2025 y su publicación aprobada el 9 de julio de 2025.

demand-side perspective. Using survey data collected from visitors and residents, we innovatively integrate two methodologies for audience classification: latent class models and multiple correspondence analysis. Our findings reveal three distinct segments based on varying degrees of propensity to participate and valuation intensity. Moreover, the perceptions each group holds regarding government actions significantly influence their decision to become involved. This highlights the need to implement participatory governance models in cultural heritage management and reveals their impact on local economic development.

Keywords: Cultural heritage ecosystems; social participation; latent class models; multiple correspondence analysis; heritage management.

JEL: Z11, Z18, C38.

Gómez-Zapata, J. D., del Barrio-Tellado, M. J., & Sánchez-Martínez, S. A. (2025). Hacia una gobernanza participativa en la gestión de los ecosistemas del patrimonio cultural: el paisaje cultural cafetero colombiano. *Cuadernos de Economía*, 44(96), 1157-1192.

Este artículo analiza la propensión a participar en la sostenibilidad y mejora de un ecosistema de patrimonio cultural —el paisaje cultural cafetero de Colombia— desde la perspectiva de la demanda. Utilizando datos de encuestas realizadas a visitantes y residentes, integramos de forma innovadora dos metodologías para la clasificación del público: los modelos de clases latentes y el análisis de correspondencias múltiples. Nuestros resultados revelan la existencia de tres segmentos distintos basados en diferentes grados de propensión a participar y de intensidad de valoración. Además, las percepciones que cada grupo tiene de las acciones gubernamentales influyen de manera significativa en su decisión de participar. Todo ello pone de relieve la necesidad de implantar modelos de gobernanza participativa en la gestión del patrimonio cultural y revela sus repercusiones en el desarrollo económico local.

Palabras clave: ecosistemas del patrimonio cultural; participación social; modelos de clases latentes; análisis de correspondencias múltiples; gestión del patrimonio.

JEL: Z11, Z18, C38.

INTRODUCTION

The literature has repeatedly dealt with the relationship between cultural heritage and economic development in an effort to identify the mechanisms that make it possible to generate growth from cultural heritage resources. Despite the existence of different approaches, the easiest transmission element to identify is cultural tourism, due to its ability to generate demand for goods and services and thereby stimulate the local economy (Ashworth, 2013; Cerisola, 2019; Herrero et al., 2006; Snowball, 2013). However, although the advantages of tourism development in terms of economic prosperity seem evident, other undesirable consequences associated with tourism may deteriorate heritage elements, even more so when it comes to ecosystems, and may affect the quality of life of residents and even affect the very survival of the heritage (Bonet, 2013; Giannoni, 2009; Jurowski & Gursay, 2004; Karayazi et al., 2024).

Rizzo and Throsby (2006) analyse heritage as a capital asset that incorporates economic and cultural values and point out the analogies between cultural capital and natural capital. This parallelism between the two concepts evidences the need for long-term management of cultural heritage, adopting criteria equivalent to those applied to natural heritage –in line with the thesis of sustainable development– and guided by the principles of conservation and precaution. Furthermore, the characteristics that define heritage assets as public goods or club goods (Gómez-Zapata et al., 2018) prevent the costs derived from their conservation from being borne by market forces. Together with the classification of heritage assets as assets of merit (Musgrave, 1959), this justifies State intervention in their maintenance (Benhamou, 2013).

There are different means through which public intervention is involved with regard to heritage assets (Benhamou, 2013; Klamer et al., 2013; Rizzo & Throsby, 2006). While the provision of public funds, taxation, and regulation are the usual public intervention tools, there is a trend towards reducing public presence and towards recognising the role that the private sector can play in heritage conservation and in stimulating people's participation (Klamer et al., 2013; Mignosa, 2016). This trend aligns with the new participatory models of management in which the different stakeholders take part –to a greater or lesser extent– in management decisions and in financing interventions, ensuring that public preferences are taken into account in the choices made concerning heritage (Peacock, 1994, Zubrow, 2016).

This turn in public policies that affect heritage is supported by the willingness to participate of the agents involved and of citizens in particular. However, some authors have pointed to the value of heritage assets in terms of contributing to national prestige and the benefits associated with their use, legacy, and existence value (Throsby, 2001; Towse, 1994) in order to explain the lack of incentives for citizen participation in heritage protection, either by revealing their preferences, or even by contributing the necessary funds required for maintenance (Mignosa,

2016). Other authors, however, identify emotional motivations for participating in heritage sustainment beyond those governed by economic criteria, and which are based on people's attachment to places derived from experiences and satisfaction level (Tan et al., 2018). Knowing to what extent citizens are willing to contribute to maintaining heritage assets is thus key to policy design and evaluation. Although economic valuation studies applied to cultural heritage (Báez & Herrero, 2012; Herrero et al., 2003; Throsby et al., 2021) do provide a measure of this willingness in monetary terms, to the best of our knowledge no studies have yet explored public propensity to participate (in monetary and non-monetary terms) in protecting cultural heritage ecosystems. It also seems clear that such willingness will not be uniform but will be affected by certain contextual variables.

Based on these foundations, our work seeks to analyse citizen propensity to participate in the sustainability of a cultural heritage ecosystem. As a case study, we take the Colombian Coffee Cultural Landscape (CCL), which is an ecosystem that combines natural, economic, and cultural elements with a high degree of uniformity regarding coffee production. The CCL was declared a World Heritage Site by UNESCO in 2011 and, accordingly, has public-private plans for its conservation. To achieve our objective, we propose a methodological approach that allows us to identify the determinants of citizens' propensity to participate and their classification into standardised groups according to this propensity. For this, we make novel and integrated use of two techniques: latent class models and multiple correspondence analysis. Results indicate three differentiated groups based on the level of involvement: high, moderate, and low involvement. We found that the valuation of tourism services and the perception of the government's role in the area have a significant influence on the willingness to participate. In addition, as a robustness test we estimated each group's willingness to contribute monetarily to preserve the ecosystem, and we found a direct relationship. These findings are valuable in that they direct public policies and focus attention on the implementation of sustainable strategies that contribute to tourism and heritage conservation and that promote local economic development.

The paper is organised as follows: section 2 presents a review of previous literature, followed by the considerations of our case study. In section 4, the method is set out as an integrated proposal of latent class models and multiple correspondence analysis. Section 5 presents the analysis of the results of the methodological application. The paper ends with the conclusions.

LITERATURE REVIEW

As mentioned, the process of de-statisation of cultural heritage policies and the subsequent incorporation of the private sector (Klamer et al., 2006, 2013; Mignosa, 2016) has materialised in different ways. One possibility involves an approach to communities and individuals, which contributes to sustainability from different perspectives and enables the budgetary restrictions inherent to public

intervention to be overcome to a certain extent. In this sense, participation in heritage approximates the valuation that visitors make of an element, from which—in principle—their willingness to contribute to its conservation and sustainability may be induced (Ateca-Amestoy et al., 2020; Gómez-Zapata et al., 2024a). There are numerous studies on participation in heritage that adopt different approaches, and which are geared towards different types of tangible (natural, cultural, and mixed) as well as intangible heritage elements. Some of these studies seek to identify the socioeconomic factors that may drive or hinder cultural participation (Ateca-Amestoy et al., 2020; Falk & Katz-Gerro, 2016; Gayo, 2017; Walker et al., 2023), while others seek to assess what impact participation has on issues such as individual well-being (Brown et al., 2015; Hand, 2018; Wheatley & Bickerton, 2019) or social cohesion (Otte, 2019; Van de Vyver & Abrams, 2018).

In some of these papers, a more limited cultural element or phenomenon is taken as a case study in order to examine the unobserved heterogeneity that induces different choice patterns and participation, mainly using latent class models. Examples of this line of work include studies by Van der Ark and Richards (2006) for cultural activities in a group of European cities, Ateca-Amestoy (2008) and Grisolia and Willes (2012) for theatre attendance, Fernández-Blanco et al. (2009) for cinema attendance, or Del Barrio-Tellado et al. (2025) for the demand for reading and libraries in Peru. Adopting a different methodology, Brida et al. (2016) study the motivations that guide museum attendance, using multiple correspondence analysis. Finally, Palma et al. (2013) take as a case study the Spring Festival of Seville in order to identify which determinants shape attendance intensity by means of estimating a zero-truncated count data model. Finally, some participation studies introduce the concept of conservation by materialising it through intervention preferences. In this sense, Tan et al. (2018) establish a relationship between people's commitment to protecting heritage elements and their affective ties with a place, from which preferences and valuations can be derived.

In general, the works referred to use a concept of participation defined in terms of access to heritage assets. However, in practice, ways of relating to cultural heritage are not limited to access or visits to heritage assets or sites. The European ESSnet-CULTURE project for the development and improvement of cultural statistics (Bína et al., 2012) identifies three possible dimensions for cultural practices: amateur practices, which involve artistic activities in leisure time; attending cultural events and following them through the media; and social participation/volunteering, which involves belonging to a group or doing voluntary work for a cultural institution. This codification of cultural practices underlines how the concept of cultural participation has expanded to incorporate a more active perspective of what it means to engage in cultural practices. While in the most common expression of cultural participation, the public contributes their time—plus the cost of admission—to the co-production of the service, new forms of participation involve the additional contribution of temporary and monetary resources (volunteering to carry out activities and donations), and even cultural capital in the form of skills for decision-making related to management (co-governance).

Various studies have examined voluntary contributions of resources through charitable and philanthropic initiatives (Andreoni, 1998; Bekkers & Wiepking, 2011; Brooks, 2003; De Wit & Bekkers, 2017). In the cultural heritage sector, some of these studies have attempted to explain this type of behaviour from a purely economic perspective focused on monetary incentives (Revelli, 2013; Schuster, 2006), while others have considered other social motivations such as altruism or moral criteria. One study worth mentioning is that of Bertacchini et al. (2011), who look at both intrinsic motivations (derived from the object of the contribution and the act of giving) and extrinsic motivations (linked to monetary or reputational compensation and social recognition) in contributions to cultural heritage, as well as the external factors that influence these decisions. Eça de Abreu et al. (2015) study prosocial behaviour, understood as a form of behaviour that is perceived as beneficial to other people, and the role of religiousness in contribution decisions. Herrero-Prieto and Sanz-Lara (2025) also take a religious event as a reference and explore the motivations that drive contributions of time and money to maintain a common cultural asset. Ch'ng et al. (2014) study how the availability of information about the value of a heritage asset can affect the decision to contribute towards preserving it. In a similar vein, Cavalieri et al. (2022) take the cathedral of Monreale (Sicily) as a case study in order to examine how the possibility of observing restoration work and obtaining information about these activities can affect the valuation of the visit and the willingness to pay. The results show that visitors value being in contact with restoration activities, and that the value is higher when they receive technical and historical information. Some studies identify regular patterns in the sociodemographic characteristics that influence donations of money and time (Bauer et al., 2013; Bekkers, 2010), and find significant differences in willingness to contribute according to age, education, income, gender, or nationality. Along these lines, Chen et al. (2017) present a study on the landscape of the Ryukyu Islands that evaluates willingness to contribute to financing landscape conservation and its socioeconomic determinants.

The trend towards incorporating new agents into conservation activities has also led to the adoption of new management models in which users can participate to a greater or lesser extent in decision-making regarding the conservation of heritage assets. The work of Throsby et al. (2021) explores this avenue and proposes a discrete choice experiment to assess public preferences for alternative conservation programmes. Beyond providing information, other forms of participation involve co-decision processes in the intervention. Ferretti and Gandino (2018) propose the use of stakeholder analysis and choice experiments to jointly design—together with stakeholders and the local community—possible strategies to regenerate abandoned rural buildings scattered around the heart of a World Heritage Site in northern Italy.

Our work aims to provide insights into the sociodemographic features that influence contribution decisions, using a particular heritage ecosystem—the CCL—as a case study. We propose an analysis of the propensity to contribute to the sustainability of this heritage asset and we identify specific profiles through latent class

and multiple correspondence analysis. These techniques make it possible to classify individuals in a population according to an estimate of their probability of choosing one response or another. In addition, introducing covariates allows us to estimate the extent to which class probabilities are affected by other sociodemographic variables. At a time when stakeholder involvement in conserving and protecting cultural heritage is being sought, our work provides a useful tool for political decision-making by estimating visitors and citizens' general degree of commitment to protect heritage elements, measured in terms of monetary contributions and in terms of attitudes that favour the conservation of such elements.

CASE STUDY: COLOMBIAN COFFEE CULTURAL LANDSCAPE

The Colombian Coffee Cultural Landscape (CCL) was declared a World Heritage Site by UNESCO in 2011 as an expression of the human and territorial fabric around the practices and traditions of coffee production, and because it forms a cultural ecosystem in which natural, socioeconomic and patrimonial characteristics converge, thereby making it a key object of analysis for public policy design. As an ecosystem, the CCL has helped to economically boost the region—expressed through multiple tourist activities—and shape the area's cultural identity.

As a declared World Heritage site, the CCL has conservation and protection plans, most of which come under a traditional public management approach that considers local governments and administrations as the ones responsible for managing said heritage (Bonet & Négrier, 2018). However, these efforts are not always sufficient and new alternatives must be sought to ensure their sustainability, for example, through new models of participatory governance, where both citizens and the private sector take on an active role in financing, promoting, and preserving these cultural heritage ecosystems. We thus take the CCL as a representative and extrapolated case for analysing other ecosystems globally. We also seek to contribute to the literature by broadening the analysis of cultural heritage assets, taking in this case a broader and more complex territorial delimitation where tangible and intangible manifestations of heritage converge, as well as the public and private provision of goods. Understanding attitudes towards preserving this ecosystem offers a relevant contribution to the formulation and evaluation of cultural policies.

METHOD

To identify segments of a population, different statistical methodologies have been developed based on observable variables as a proxy for an unobservable condition such as the desire to become involved in preserving cultural heritage ecosystems. One methodological approach is latent class models (LCM), known as a model-based statistical technique and introduced by Lazarsfeld (1950) and systematised

by Hagenaars and McCutcheon (2002). The aim of this technique is to detect unobservable heterogeneity in samples and to empirically identify the probability that each observational unit belongs to the latent subgroups that constitute this heterogeneity (Weller et al., 2020). The technique has frequently been used to design medical strategies, identify social patterns, and evaluate public policy strategies (Cazorla-Artiles & Eugenio-Martín, 2023; Mäntymaa et al., 2018; Ritchie et al., 2021). However, it has also been employed to analyse cultural demand and attitudes towards cultural tourism (Grisolia & Willis, 2012; Pulido-Fernández & Sánchez-Rivero, 2010).

Following Cameron and Trivedi (2005), suppose $i \in \{1, 2, \dots, N\}$, $j \in \{1, 2, \dots, J\}$ and $k \in \{1, 2, \dots, K_j\}$. Let Y_{ijk} be a categorical variable that expresses the response of individual i in category k of variable j . Given an independent and identically distributed sample, the probability of i responding Y_{ijk} follows a joint multinomial distribution with parametric space $\boldsymbol{\pi}$, defined as:

$$P(\mathbf{Y}_i | \boldsymbol{\pi}) = \prod_{j=1}^J \prod_{k=1}^{K_j} \pi_{jk}^{1\{Y_{ij}=k\}} \quad (1)$$

However, the virtue of the LCM approach is that it allows that probability to be conditioned on the latent class or subgroup of which the individual is believed to be a part. Let $c \in \{1, 2, \dots, C\}$ and \mathbf{p} the parametric space of the weights that each class c has in the sample. It then follows that

$$P(\mathbf{Y}_i | \boldsymbol{\pi}, \mathbf{p}) = \sum_{c=1}^C p_c \prod_{j=1}^J \prod_{k=1}^{K_j} \pi_{jkc}^{1\{Y_{ij}=k\}} \quad (2)$$

expresses the probability density across the classes that an individual i belonging to the class c responds Y_{ijk} .

Note that the fundamental identifying assumption in this type of modelling is conditional independence, i.e., homogeneity in the distribution within each latent class (Linzer & Lewis, 2011). Additionally, the flexibility of this specification not only allows unobservable heterogeneity to be modelled but also enables observable covariates that may influence the response probability to be included. Hence:

$$P(\mathbf{Y}_i | \boldsymbol{\pi}, \mathbf{p}, \boldsymbol{\beta}, \mathbf{X}_i) = \sum_{c=1}^C p_c | \mathbf{X}_i \prod_{j=1}^J \prod_{k=1}^{K_j} \pi_{jkc}^{1\{Y_{ij} = k | \mathbf{X}_i\}} \quad (3)$$

This implies estimating additional parameters that increase as the model becomes more complex, such that a parsimony criterion is required for estimation (Linzer & Lewis, 2011). Finally, estimation of this type of model is performed with the expectation-maximisation algorithm¹.

¹ The expectation-maximisation (EM) algorithm is an estimation method that iteratively updates the posterior probabilities of a likelihood function dependent on unobservable variables (Cameron & Trivedi, 2005).

Another methodological approach involves constructing indicators from observable characteristics of individuals based on multiple correspondence analysis (MCA). This technique allows us to construct preference profiles on different sets of categorical data and to generate a quantitative indicator-type measure that synthesises the information contained in the observable variables of the sample. A continuous measure is thus obtained that allows us to identify more directly the intensity of the propensity to participate manifested in our observation units (Le Roux & Rouanet, 2010). MCA is based on analysing the similarity of survey responses, calculating geometrically the distance between individuals and the categories of the variables. This methodology allows the representation of scatter diagrams in a multidimensional space, where the proximity or distance between points indicates the similarity or dissimilarity between individuals and categories (Abdi & Valentin, 2007). MCA has often been applied in social science studies, where it is used as an exploratory and synthesis technique for categorical data. For example, Asselin (2009) proposes constructing multidimensional poverty indicators; Ulman and Dobay (2020) use it to measure the degree of environmental awareness and participation of Romanian citizens. In the cultural field, Richards and Van der Ark (2013) segment the dimensions of cultural consumption among tourists using geometric spaces.

The rationale of MCA assumes that $i \in \{1, 2, \dots, N\}$, $j \in \{1, 2, \dots, J\}$ and $k \in \{1, 2, \dots, K_j\}$. Let Y_{ijk} be a categorical variable that expresses the response of individual i in category k of variable j . For each j , it is possible to construct K_j binary indicators and stack them in matrix X of N cases and $\sum_{j=1}^J K_j$ columns. Following Greenacre and Blasius (2006), MCA is based on analysing the full contingency matrix associated with X , known as Burt's matrix:

$$B = X^T X \quad (4)$$

Matrix B contains the co-occurrence frequencies of pairs of categories between the different variables, such that matrix $P = N^{-1}B$ contains the relative frequency of co-occurrence between the different categories of the variables. Based on the above, it is possible to construct profiles of categories or individuals through a geometric measure: Pearson's chi-square distance,

$$d(i, i') = \sum_{k=1}^K \frac{(x_{ik} - x_{i'k})^2}{p_k} \quad (5)$$

where p_k is the marginal proportion of category k at P . According to Greenacre and Blasius (2006), in order to compute this distance using a matrix, the singular value decomposition is computed to project the profiles of categories and observations into a low-dimensional space that maximises the variation explained by the associations between variables, with the distances in this space reflecting the associations between categories (for variables) and between observations (for individuals).

Finally, these coordinates are used as factor scores to aggregate the J variables into a composite indicator that allows the information contained in them to be summed up and interpreted:

$$PPI_i = \frac{\sum_{j=1}^J \sum_{k=1}^{K_j} w_k^{\alpha,j} x_{i,k}^j}{J} \tag{6}$$

where PPI_i is the propensity to participate indicator for individual i , $w_k^{\alpha,j}$ is the normalised score of category k of variable j from α -th factorial axis, and $x_{i,k}^j$ represents the binary indicator of category k of variable j for the i -th individual².

ANALYSIS AND RESULTS

Data and variables

The data used in this research come from a survey applied in person to residents and visitors during two specific periods in 2023 (April and September 2023) at 15 sites that are representative of the Colombian Coffee Cultural Landscape (see Gómez-Zapata et al., 2024b). In line with the population of the area, a standard random sampling estimated the need for 385 surveys, although 588 people were eventually surveyed³. The survey consisted of 26 questions distributed in four segments: the first addresses aspects of contextualisation and knowledge of the CCL; the second contains an economic valuation exercise of the main attributes that make up this cultural ecosystem; the third includes questions about the level of satisfaction, experience and expenses incurred during the visit; finally, the fourth segment includes sociodemographic variables pertaining to respondents (see Table 1).

Table 1.
Descriptive statistics of the sample

Variable	Level	Frequency	%	Gini*
Gender	Female	293	50%	0.50
	Male	295	50%	

(Continued)

² Note that –by construction– the propensity indicator is a simple average of the weighted sum of the different categories of each of the variables in the analysis, which can be normalised between 0 and 1 for ease of interpretation.

³ While the sample is statistically significant, there may be some limitations in representing the whole population of the area. This bias has been controlled for by including a representation of people with different sociodemographic characteristics.

Variable	Level	Frequency	%	Gini*
Income**	0-268.2 USD	265	45%	0.71
	268.2-536.4 USD	148	25%	
	536.4-804.6 USD	72	12%	
	804.6-1072.8 USD	30	5%	
	1072.8-1341 USD	20	3%	
	1341-1609.2 USD	10	2%	
	1609.2-1877 USD	20	3%	
	> 1877 USD	23	4%	
CCL Municipality	Resides in the CCL	225	38%	0.47
	Does not reside in the CCL	363	62%	
Status	Colombian	532	90%	0.18
	Foreigner	56	10%	
Labour sector	None	344	59%	0.61
	Public sector	71	12%	
	Education	57	10%	
	Heritage	57	10%	
	Tourism	22	4%	
	Environment	21	4%	
	N/A	22	3%	
Occupation	Employee	272	46%	0.72
	Independent	109	19%	
	Study	55	9%	
	Study and work	48	8%	
	Housewife	45	7%	
	Unemployed	59	10%	
Variable	Mean	Std. Dev	Min	Max
Age	39.21	16.32	18-99	99
Household size	3.19	1.69	1	11

N: 588

* Ranges from 0 to 1, where 0 indicates total concentration (all responses fall into a single category) and values closer to 1 reflect greater dispersion or heterogeneity across categories.

** 1 SMMLV 2023 = 1'160.000 COP – Average Exchange Rate 2023: 1 USD = 4.235 COP

To conduct our methodological exercise, we start based on the assumption that the population who live in or visit this ecosystem declared as a World Heritage Site display economic, historical, and/or altruistic reasons for participating in activities aimed at promoting and protecting it (Klamer et al., 2013; Mignosa, 2016;

Tan et al., 2018; Throsby et al., 2021). Nevertheless, and as already mentioned, this willingness to participate is directly unobservable. We therefore took a set of variables that indirectly express this propensity and that are related to four fundamental aspects: cultural motivation and consumption (Berkes, 2004; Santana, 2020), valuation of experiences with the services enjoyed (Cazorla-Artiles & Eugenio-Martín, 2023), willingness to make monetary contributions to preserve the ecosystem (Chafía Martínez, 2019; Gómez-Zapata et al., 2024b; Soini et al., 2012), and perception of government (Navarro, 2015; Nunkoo & Ramkissoon, 2011). Table 2 shows a statistical summary of the variables considered when carrying out our analysis as well as the justification for their inclusion, based on the literature.

Table 2.
Variables for LCM

Variable	Description	Theoretical support	Level	Percentage
VECVIS	How many times have you visited the CCL?	Soini et al. (2012); Ateca-Amestoy et al. (2020)	First time	14.97
			2-3 times	30.61
			4-6 times	12.07
			7-10 times	6.46
			More than 10 times	35.88
DISF	Your reason for visiting is to enjoy the tourist and cultural attractions.	Navarro (2015); Santana (2020)	Yes	45.07
			No	54.93
PCCL	People should be involved in caring for the CCL and its sustainability	Zubrow (2016)	Indifferent	2.04
			Agree	5.78
			Completely agree	92.18
DCCL	It is necessary to raise awareness of the CCL at a national and international level	Navarro (2015)	Totally disagree	0.34
			Slightly agree	0.85
			Indifferent	2.72
			Agree	9.35
			Totally agree	86.73
WTP	Would you be willing to make an annual monetary contribution to preserve the CCL?	Hoyos et al. (2009); Chafía Martínez (2019); Gómez-Zapata et al. (2024b)	No	31.29
			Yes	68.71

(Continued)

Variable	Description	Theoretical support	Level	Percentage
CULCAF	Rate your experience of the coffee culture	Berkes (2004); Pretty and Smith (2004)	Not used	25.85
			Completely dissatisfied	2.21
			Dissatisfied	3.4
			Indifferent	10.37
			Satisfied	21.43
			Completely satisfied	36.73
CONPAI	Rate your experience of the natural landscape	Berkes (2004); Soini et al. (2012)	Not used	2.38
			Completely dissatisfied	0.17
			Dissatisfied	1.02
			Indifferent	3.23
			Satisfied	9.69
			Completely satisfied	83.5
SITCUL	Rate your experience of the cultural sites	Chafla Martínez (2019)	Not used	49.32
			Completely dissatisfied	0.68
			Dissatisfied	1.02
			Indifferent	2.55
			Satisfied	10.88
			Completely satisfied	35.54
ATUR	Rate your experience of the tourist attractions	Berkes (2004)	Not used	37.24
			Completely dissatisfied	0.34
			Dissatisfied	0.51
			Indifferent	3.57
			Satisfied	8.5
			Completely satisfied	49.83

(Continued)

Variable	Description	Theoretical support	Level	Percentage
DIFCCL	Rate your experience in terms of the promotion and dissemination of the CCL	Berkes (2004); Nunkoo and Ramkissoon (2011)	Not used	15.31
			Completely dissatisfied	7.99
			Dissatisfied	6.63
			Indifferent	14.97
			Satisfied	21.43
			Completely satisfied	33.67
PGOB	Rate your experience of the government's presence and partnership with entrepreneurs	Berkes (2004); Nunkoo and Ramkissoon (2011)	Not used	54.76
			Completely dissatisfied	16.84
			Dissatisfied	5.27
			Indifferent	9.01
			Satisfied	5.61
			Completely satisfied	8.5
OFITUR	Rate your experience of the offices and sites for visitor and tourist services	Nunkoo and Ramkissoon (2011); Cazorla-Artiles and Eugenio-Martín (2023)	Not used	55.27
			Completely dissatisfied	11.73
			Dissatisfied	2.89
			Indifferent	7.99
			Satisfied	9.69
			Completely satisfied	12.41

Classification of groups according to their propensity to participate

In order to determine the optimal number of segments that characterise individuals' preferences and attitudes toward participation in CCL sustainability, the Akaike (AIC) and Schwarz (BIC) information criteria were used. Table 3 shows the results, with the conclusion being that $C = 3$ is an adequate number of segments to estimate equation (3)⁴.

⁴ This point is also chosen considering a parsimony criterion, since the AIC was still decreasing, while the BIC in class three contrasts this trend. We thus obtain greater explanatory capacity when applying the regression models after classifying the sample.

Table 3.
Information criteria by model

No. of latent classes	Log-Lik	AIC	BIC	Npar	df
1	-4978.7	10037.47	10212.54	40	548
2	-4778.4	9756.80	10194.48	100	488
3	-4648.1	9617.022	10317.3	160	428
4	-4571.3	9582.69	10545.57	220	368

We then iteratively estimate LCMs with and without covariates. The inclusion of covariates allows us to analyse the specific effects of each variable on participation probabilities, which contributes to a more detailed understanding of the factors that influence individuals' behaviour. When estimating the model, we found plausible differences in the observable variables, suggesting that the three latent classes represent well-differentiated segments within the sample. Maximum likelihood estimates for $p_c | X_i$ indicate that 39.7% of the sample belong to $c = 1$; 31.6% belong to class $c = 2$, and finally that 28.7% are part of class $c = 3$. The estimated probabilities π_{jkc} for each variable Y_{jk} of the model are shown in Table 4 and reveal marked differences between the three latent classes, especially in terms of satisfaction regarding government presence and associativity, the quality of services in tourist offices and sites, and the frequency of visits to the cultural ecosystem.

Table 4.
Conditional response probabilities for each variable by class

Variable	Level	Class 1	Class 2	Class 3
VECVIS	First time	0.08	0.00	0.40
	2-3 times	0.31	0.23	0.38
	4-6 times	0.13	0.12	0.11
	7-10 times	0.09	0.10	0.00
	More than 10 times	0.39	0.56	0.10
DISF	Yes	0.52	0.61	0.18
	No	0.48	0.39	0.82
PCCL	Indifferent	0.00	0.05	0.02
	Agree	0.00	0.11	0.07
	Completely agree	1.00	0.84	0.91

(Continued)

Variable	Level	Class 1	Class 2	Class 3
DCCL	Total disagreement	0.00	0.01	0.00
	Little agreement	0.00	0.02	0.01
	Indifferent	0.00	0.04	0.04
	Agree	0.03	0.11	0.16
	Completely agree	0.97	0.81	0.79
WTP	No	0.23	0.35	0.39
	Yes	0.77	0.65	0.61
CULCAF	Completely dissatisfied	0.01	0.07	0.02
	Dissatisfied	0.01	0.12	0.02
	Indifferent	0.07	0.27	0.11
	Satisfied	0.19	0.42	0.30
	Completely satisfied	0.72	0.11	0.55
CONPAI	Completely dissatisfied	0.00	0.00	0.00
	Dissatisfied	0.01	0.03	0.00
	Indifferent	0.00	0.06	0.05
	Satisfied	0.05	0.25	0.01
	Completely satisfied	0.94	0.66	0.94
SITCUL	Completely dissatisfied	0.02	0.03	0.00
	Dissatisfied	0.00	0.06	0.01
	Indifferent	0.01	0.13	0.03
	Satisfied	0.09	0.53	0.11
	Completely satisfied	0.88	0.25	0.85
ATUR	Completely dissatisfied	0.00	0.02	0.00
	Dissatisfied	0.01	0.02	0.00
	Indifferent	0.00	0.16	0.04
	Satisfied	0.06	0.33	0.06
	Completely satisfied	0.93	0.47	0.90

(Continued)

Variable	Level	Class 1	Class 2	Class 3
DIFCCL	Completely dissatisfied	0.03	0.15	0.13
	Dissatisfied	0.00	0.13	0.13
	Indifferent	0.07	0.30	0.18
	Satisfied	0.22	0.30	0.24
	Completely satisfied	0.68	0.13	0.32
PGOB	Completely dissatisfied	0.15	0.34	0.64
	Dissatisfied	0.08	0.19	0.08
	Indifferent	0.19	0.28	0.12
	Satisfied	0.17	0.15	0.05
	Completely satisfied	0.41	0.05	0.11
OFITUR	Completely dissatisfied	0.02	0.29	0.56
	Dissatisfied	0.00	0.14	0.08
	Indifferent	0.10	0.28	0.18
	Satisfied	0.27	0.26	0.10
	Completely satisfied	0.61	0.04	0.08

Class 1: Highly likely to participate; **Class 2:** Moderately likely to participate; **Class 3:** Not likely to participate.

Individuals in $c = 1$ show a high probability of satisfaction and participation. For example, they show an 88% probability of being completely satisfied with the tourist sites, and a 72% probability of being completely satisfied with the attractions related to coffee culture. Likewise, their high probability (48%) of visiting this landscape seven or more times indicates recurrent familiarity and participation in the cultural ecosystem domain, suggesting they are a group with a high propensity of becoming involved in its sustainability. In contrast, individuals in class $c = 2$ show a moderate propensity to participate, with a 53% probability of satisfaction with cultural sites and a moderate probability (34%) of being dissatisfied with government presence and associativity, respectively. This indicates a group with sustained participation but not as high as in class $c = 1$.

Finally, individuals in class $c = 3$ display a very high likelihood of low satisfaction and lower frequency of visits. For example, 56% of those in this class report being completely dissatisfied with the tourist office services, while 63% are dissatisfied with government presence, and with 40% reporting being in the cultural ecosystem for the first time.

Table 5 presents the relevant patterns in the relationship between the covariates considered and the latent propensity to participate in CCL sustainability. This relationship is represented in the log-odds coefficients derived from the logit link function of the latent class model.

Table 5.
Estimated parameters for each covariable (logit link)

Covariate		Class 2		Class 3	
Intercept		1.37	(2.02)	2.39	(2.31)
Gender (female)		-0.40	(0.33)	0.67*	(0.39)
Educational attainment		0.42**	(0.19)	0.42**	(0.19)
Retired		0.54	(0.75)	-1.66	(1.51)
Worker		0.03	(0.45)	-0.82*	(0.47)
Resides in CCL		0.43	(0.44)	-1.29***	(0.45)
Foreigner		-14.06***	(0.00)	0.77	(0.89)
Attribute valuation	Coffee crops	-0.32*	(0.17)	-0.32*	(0.19)
	Landscape	-0.07	(0.17)	-0.07	(0.21)
	Cultural expressions	-0.25	(0.19)	-0.28	(0.23)
	Tourism infrastructure	-0.25	(0.18)	-0.27	(0.21)
Income	268.2-536.4 USD	-0.86*	(0.45)	0.07	(0.51)
	536.4-804.6 USD	-0.55	(0.65)	0.36	(0.63)
	804.6-1072.8 USD	-0.44	(0.76)	-2.31**	(0.98)
	1072.8-1341 USD	10.85***	(0.47)	11.06***	(0.47)
	1341-1609.2 USD	-13.44***	(0.00)	-0.14	(1.13)
	1609.2-1877 USD	-0.12	(1.36)	-0.37	(1.25)
	1877 or more	13.03***	(0.82)	10.69***	(0.82)

(Continued)

Covariate		Class 2		Class 3	
Labour sector	Education	0.14	(0.75)	1.05*	(0.60)
	Tourism	1.34*	(0.72)	-11.52***	(0.00)
	Environment	0.03	(0.70)	-1.12	(1.13)
	Heritage	1.34**	(0.54)	1.10	(0.75)

Note. Class 1 is the reference class.

Standard errors in parenthesis.

*** 1% significance level.

** 5% significance level.

* 10% significance level.

Number of cases: 588

Number of fully observed cases: 90

Number of estimated parameters: 164

Residual degrees of freedom: 424

Maximum log-likelihood: -4643.9

AIC (3): 9615.763

BIC (3): 10333.55

χ^2 (3): 15800091

χ^2 p-value: < 0.001

When analysing the results in relation to the covariates, we find no significant difference in terms of gender between men and women in the probability of being moderately likely to participate, compared to those who are highly likely to. However, women show a higher relative probability of belonging to the low propensity to participate group when compared to men.

In terms of educational attainment, individuals with higher levels of education tend to have a lower propensity to participate. This may be because they have a more critical perspective towards associativity and the role of the government in managing the cultural landscape, which leads them to appear in the class with a lower propensity to participate. As regards place of residence, inhabitants of the municipalities that make up the CCL have a lower probability of belonging to the low propensity class compared to the high propensity class, while foreigners show a higher –albeit not significant– probability of being less likely to participate. This trend seems logical, since residents might have a greater motivation to preserve their cultural heritage as this offers valuable resources for territorial economic development.

As regards income level, an interesting pattern emerges concerning the propensity to participate in conservation. Individuals with incomes below or equal to 536 USD present a negative and significant coefficient in class 2, which suggests a greater likelihood of belonging to the high participation class. In contrast, those with higher incomes (1072.8–1341 USD) have a higher relative probability of belonging to the low and moderate propensity classes, respectively. This could be interpreted as an indication that individuals in lower income ranges –who tend to be more dependent on local resources and environmental conservation– may be motivated to participate in conservation activities. On the other hand, those with higher incomes might consider their participation to be less relevant as they perceive that their welfare does not directly depend on how well preserved the cultural landscape is, since their purchasing power would allow them to make other substitute consumptions.

Finally, as regards respondents' employment sector, the results indicate that working in the heritage sector increases the probability of belonging to the moderately likely class as opposed to the highly likely class. In contrast, being employed in education is associated with a higher probability of a low propensity to participate, while working in the environmental sector shows no significant differences among the three propensity levels. However, respondents working in the tourism sector show a higher relative likelihood of being actively involved in promoting and disseminating the cultural ecosystem.

Continuing with our methodological proposal, we proceed to the MCA, keeping the LCM variables, which allows us to estimate the coordinates and factorial contributions for each variable –as shown in Appendix 1– and their subsequent representation in a Cartesian plane (see Figure 2). Interpreting the factorial axes requires examining the proportion of information captured by each axis as well as the variables and categories that contribute most significantly to each dimension. After selecting the most relevant axis for our case study, its coordinates were used as weights to construct the participation propensity index (PPI), as previously established in equation (6).

Based on Figure 1, we can conclude that the first factorial axis is marked by visitors' appreciation in terms of promoting the destination and the perception of tourism infrastructure and services, with a clear split between those who rate natural-landscape and cultural-site satisfaction highly versus those who emphasise coffee-culture experiences and promoting the destination. Variables related to government presence and willingness to help preserve the CCL show no direct relationship with this dimension.

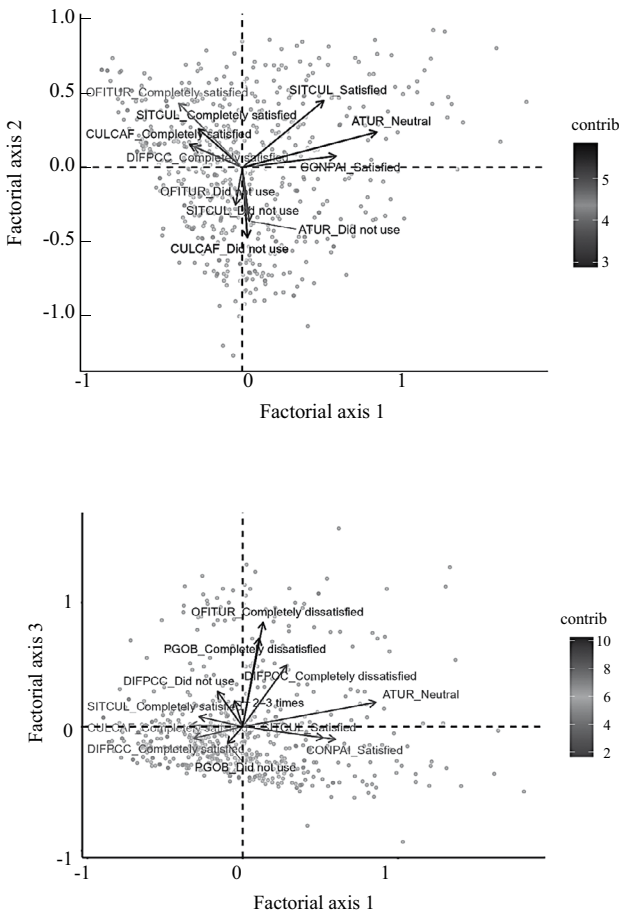
The second factorial axis similarly reflects satisfaction with infrastructure and services related to tourism and culture in the CCL; its strongest contributors are satisfaction with cultural sites (SITCUL), tourism offices (OFITUR), and coffee culture (CULCAF), while “did not use” categories load on the opposite side. The third factorial axis is defined mainly by variables related to respondents' satisfaction with government presence and associativity as well as with tourism offices and sites. This axis isolates a small cluster of “institutionally dissatisfied” visitors (e.g., OFITUR and PGOB completely dissatisfied) versus those with high overall satisfaction, aligning closely with the LCM class least likely to participate.

The results of the MCA allow us to identify clear patterns in the data, where people with positive evaluations of cultural and tourism aspects present associations that can be interpreted as more likely to participate in preserving the CCL. The third dimension also shows that both appreciation for the cultural environment and the perception of government administration play a crucial role in attitudes towards heritage protection, such that we constructed the propensity-to-participate index of equation (6) making use of this factorial axis ($\alpha=3$).

Figure 2 presents the histogram of the PPI, which shows that the distribution of this variable in individuals presents negative skewness (fat left tail), suggesting that most individuals have a high propensity to participate. However, there are many observations regarding a PPI of 0.25, which indicates the existence of a proportion of individuals with a low propensity to participate –in agreement with class 3 identified in the LCM.

Figure 1.

Bi-plots of coordinates and contributions for the first three factorial axes



Although there seems to be consistency in the results obtained by both techniques, we proposed a regression analysis to determine the degree of association between the results obtained by MCA and those derived from LCM, as shown in Table 6.

Figure 2.
Histogram of the Propensity to Participate Index (PPI)

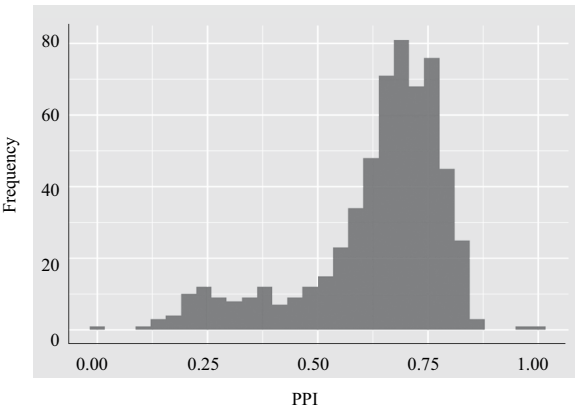


Table 6.
Association between PPI and the latent classes identified

	PPI	
Intercept	0.688***	(0.049)
Class 2	-0.029**	(0.015)
Class 3	-0.168***	(0.014)

HC1 standard errors in parenthesis.
N: 588
R2: 0.193
Adjusted R2: 0.191
Residual standard error: 0.145
F statistic: 70.12

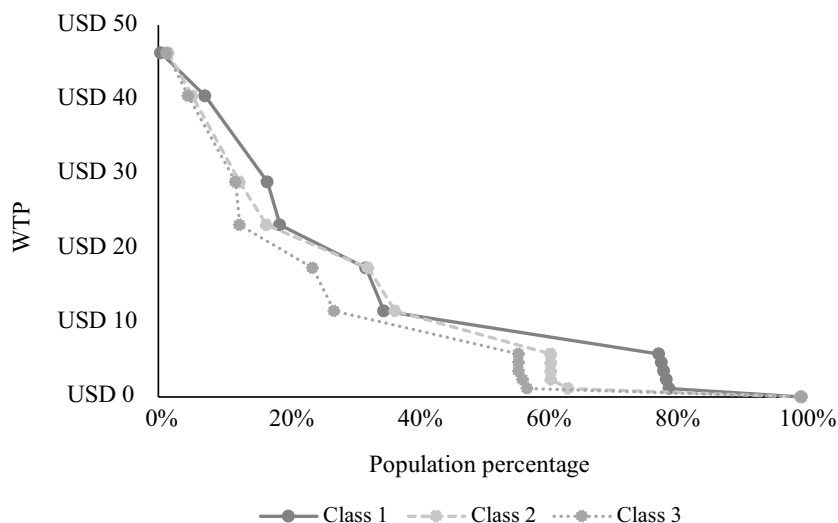
In class 1, the PPI takes a value of 0.69, which is consistent with the result of the latent class analysis, given that this class corresponds to the one with the highest propensity to participate. On average, belonging to class 2 is associated with a decrease of 0.029 units in the PPI, suggesting that the propensity to participate is slightly lower in this group, which is consistent with the previous characterisation of class 2 as being moderately likely to participate. Finally, membership in class 3 is associated with a reduction of 0.168 units in the propensity index which implies that, on average, individuals in this class present a PPI of 0.5. This finding is consistent with identifying class 3 as having the lowest propensity to participate.

Estimation of each group's willingness to pay

Finally, we refer to the works of Hoyos et al. (2009), Soini et al. (2012) and Chafla Martínez (2019) where willingness to participate in managing common resources is manifested in the willingness to make monetary contributions. Accordingly, as a robustness test, we propose estimating the willingness to pay to preserve the CCL for each of the three population segments. For this, we applied a contingent valuation-type exercise presenting as a scenario of change the need to obtain new resources to guarantee the conservation and sustainability of this cultural heritage ecosystem (see Gómez-Zapata et al., 2024b). This scenario has a participatory governance approach, complemented by the recent experience of interviewees in the CCL. An annual donation that would be administered through an association of heritage watchdogs was defined as a payment vehicle⁵. To estimate the mean WTP, we used the non-parametric method proposed by Kriström (1990) through the survival function constructed by means of the vector of declared payments and their respective acceptance proportions. For this purpose, the Pooled Adjacent Violator Algorithm –PAVA (Ayer et al. 1955)– technique was applied, which yielded the survival curves in Figure 3, and which have a monotonic trend rather than an increasing trend, as might be expected.

Figure 3.

Survival curve of WTP for each class



⁵ Previous studies of non-market asset valuations in emerging economies, such as Colombia, indicate that an increase in taxes and/or charges by the state generates protests and rejection by respondents.

The results of the mean WTP estimates have a direct relationship with the classification of the groups, i.e., the highly participation-prone class 1 reported the greatest willingness to contribute through an annual donation to preserve and improve the CCL (35.6 USD), whereas classes 2 and 3 reported a mean WTP of 30.9 USD and 26 USD, respectively. This shows that the higher the propensity to participate the higher the willingness to pay to guarantee the conservation, dissemination, and promotion of this cultural heritage ecosystem. Our results are consistent with those of Nunkoo and Ramkissoon (2011) who note that community satisfaction and trust in institutions influence community support for a programme. In a similar vein, Bertacchini et al. (2011) confirm the positive effect that trust in institutions has on perceived donations to support cultural heritage. Although the decreasing trend between the classes who are less likely to participate and the lowest WTP is consistent, it is important to highlight that, in general, the intensity of the WTP figures is appreciable and reveals: (i) the social preference for conserving and sustaining this cultural heritage ecosystem; (ii) the positive public response (>60% in each class) in terms of becoming involved in CCL conservation actions, thereby going beyond what is merely a contemplation and enjoyment position towards this heritage; (iii) as indicators, they also evidence the legitimacy of public investment in these territories and the recognition of new models of participatory governance.

CONCLUSIONS

Implementing participatory governance models is a key challenge in the field of cultural policies, since such policies have the capacity to shape individual action as well as trust relationships and the norms and connections required to obtain positive results in terms of preserving and enhancing cultural assets. This is even more the case when it comes to heritage ecosystems that not only constitute an element of identity and territorial branding but which are also an important resource for promoting economic activities (for example, tourism) that in some way determine local development structures.

In this work, we examine citizen propensity to become involved in the sustainability and improvement of a cultural heritage ecosystem –the Coffee Cultural Landscape of Colombia, declared a World Heritage Site in 2011. We start based on the understanding that social participation is necessary for heritage management and that it is required if new public governance is to be implemented. Our research aim was thus to classify and identify the determinants of various public communities according to their likelihood of participating. Based on a survey of 588 people –including residents and visitors to the area– at two seasonal moments in 2023, we implemented a novel methodological design that integrates two population segmentation techniques: LCM and MCA.

The results indicate the presence of three different participation groups: first, those who are highly likely to become involved, and which corresponds to people with

medium and high-income levels, a better perception of and satisfaction with tourism and cultural services, involvement in tourism and heritage activities and who display a greater accumulation of cultural consumption, which could be related to being mainly residents of the area. The second group contains those who are moderately likely to become involved. They manifest constant cultural consumption but are less satisfied with the provision of services, added to which they display medium and medium-low income levels. Finally, the low propensity group is made up of citizens with low-income levels. They are dissatisfied with the tourist services and display less intensity in terms of visiting the CCL, since most of them seem to be international tourists. The results of this segmentation are consistent and allow public managers and administrators to establish actions to improve heritage management while encouraging greater citizen participation. Some of these actions can be carried out by consolidating a group of volunteers who are willing to conserve the CCL, either with a monetary contribution or by contributing their time as a guardian of the heritage services of this area.

One of the most significant results might be that the MCA indicates that one of the most influential factors for clustering is the perception that people have of governments; that is, the more they value the presence of the State, the more likely they are to become involved in caring for the CCL. This result is also useful as input for public evaluation and as a signal for those in power to make an effort and to include in their programmes actions focused on culture and heritage. Finally –and once the groupings and determinants of the classes had been validated– we estimated each group's willingness to pay to preserve and improve the CCL, both as a robustness test and on the understanding that monetary contributions are an observable and tangible expression of participation. Results indicate a direct relationship, since the highly likely group reports a mean WTP of 35.6 USD, while the moderate and low likelihood groups reach a mean WTP of 30.9 USD and 26 USD, respectively. These findings validate the segmentation of the classes and reflect logical behaviour. Finally, the research opens up the possibility of analysing co-financing and resource management mechanisms.

While our quantitative approach offers significant explanatory power, a fuller understanding of participatory governance in cultural heritage contexts would benefit from complementary qualitative methods. Techniques such as thematic content analysis, in-depth interviews, or participatory observation could provide richer insights into motivations, tensions and/or forms of agency that are not easily quantifiable. Future research could explore these qualitative avenues to uncover insights and complement measurements and indicators constructed with applied techniques.

To conclude, we show that the techniques applied are both useful and adequate to respond to our research objective. We consider that analysing cultural landscapes as well as citizens' preferences towards them can provide necessary input for the formulation and evaluation of policies and plans for their sustainability. Through this exercise, we help to study an expression of heritage that has thus far been

scarcely addressed in the literature –a cultural ecosystem– and, more especially, its impact in regions such as Ibero and Latin America, where there is an important presence of these ecosystems. It is also important to explore this aspect because they are a capital stock that can strongly influence territorial economic development. Creating policies that align with social preferences will thus allow for a better guarantee of their sustainability.

ACKNOWLEDGMENTS

The authors would like to thank the arbiters and the participants at the IV Ibero-American Seminar on Cultural Economics for their comments and discussions regarding a preliminary version of the paper. We are also grateful for the comments and suggestions made by the anonymous reviewers of the journal. The usual disclaimer applies.

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APPENDIX 1.

Factorial coordinates and contributions

Variable	1 Axis		2 Axis		3 Axis		4 Axis	
Eigenvalue	0.04		0.04		0.03		0.02	
Percentage of variance (%)	10.89		9.57		6.81		5.10	
VECVIS	Level	Coord.	Contrib.	Coord.	Contrib.	Coord.	Contrib.	Contrib.
	First time	-0.11	0.34	-0.07	0.14	0.08	0.33	0.67
	2-3 times	-0.05	0.16	0.08	0.43	0.21	4.01	1.96
	4-6 times	0.02	0.01	0.08	0.15	-0.11	0.44	0.25
	7-10 times	-0.03	0.01	0.13	0.24	-0.06	0.07	0.10
	More than 10 times	0.09	0.53	-0.09	0.63	-0.16	2.96	0.12
DISF	Yes	0.08	0.56	0.07	0.54	-0.15	2.94	0.00
	No	-0.07	0.46	-0.06	0.44	0.12	2.41	0.00
PCCL	Indifferent	0.18	0.12	-0.13	0.08	-0.28	0.48	1.03
	Agree	0.66	4.80	0.11	0.15	0.19	0.62	1.68
	Completely agree	-0.05	0.36	0.00	0.00	-0.01	0.01	0.03
	Total disagreement	0.72	0.34	-0.71	0.37	-0.86	0.78	0.03
DCCL	Little agreement	0.21	0.07	0.03	0.00	0.01	0.00	0.05
	Indifferent	0.51	1.37	0.29	0.51	0.00	0.00	2.58
	Agree	0.26	1.25	0.00	0.00	0.14	0.56	0.25
	Completely agree	-0.05	0.41	-0.01	0.01	-0.01	0.04	0.02

(Continued)

Variable	1 Axis		2 Axis		3 Axis		4 Axis		
WTP	No	0.11	0.75	-0.10	0.75	0.03	0.08	0.06	0.41
	Yes	-0.05	0.34	0.05	0.34	-0.01	0.04	-0.03	0.19
CULCAF	Not used	0.03	0.05	-0.47	12.43	0.00	0.00	-0.05	0.27
	Completely dissatisfied	0.13	0.07	0.06	0.02	0.57	2.21	-0.30	0.83
	Dissatisfied	0.60	2.37	-0.15	0.16	-0.01	0.00	0.37	1.94
	Indifferent	0.39	3.00	0.13	0.40	-0.06	0.12	0.33	4.48
	Satisfied	0.24	2.39	0.26	3.12	-0.05	0.16	-0.17	2.60
	Completely satisfied	-0.34	7.97	0.15	1.86	0.01	0.02	0.03	0.12
CONPAI	Not used	-0.19	0.16	-0.61	1.90	0.30	0.66	-0.22	0.47
	Completely dissatisfied	-0.79	0.20	0.37	0.05	0.30	0.05	0.17	0.02
	Dissatisfied	0.10	0.02	-0.01	0.00	0.24	0.18	-0.69	1.99
	Indifferent	0.67	2.74	-0.01	0.00	0.56	3.15	0.33	1.41
	Satisfied	0.60	6.61	0.08	0.12	-0.10	0.32	-0.21	1.70
	Completely satisfied	-0.09	1.28	0.01	0.01	-0.02	0.12	0.03	0.23
SITCUL	Not used	0.03	0.06	-0.31	10.38	-0.02	0.07	-0.07	0.85
	Completely dissatisfied	0.41	0.22	0.69	0.70	-0.34	0.24	0.00	0.00
	Dissatisfied	1.21	2.87	0.17	0.06	-0.08	0.02	1.41	8.26
	Indifferent	0.59	1.68	0.26	0.37	-0.19	0.29	0.74	5.77
	Satisfied	0.52	5.59	0.45	4.76	-0.09	0.27	-0.36	5.66
	Completely satisfied	-0.28	5.32	0.26	5.14	0.08	0.70	0.11	1.62

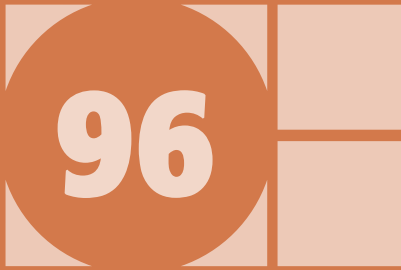
(Continued)

Variable		1 Axis		2 Axis		3 Axis		4 Axis	
ATUR	Not used	0.04	0.14	-0.36	10.61	-0.03	0.10	-0.08	0.98
	Completely dissatisfied	1.22	0.97	0.05	0.00	0.12	0.02	1.55	3.33
	Dissatisfied	0.54	0.29	0.36	0.15	0.17	0.05	-1.15	2.74
	Indifferent	0.86	5.03	0.24	0.44	0.20	0.42	0.71	7.33
	Satisfied	0.55	4.87	0.26	1.26	0.06	0.09	-0.32	3.46
	Completely satisfied	-0.20	3.87	0.20	4.55	0.00	0.00	0.06	0.84
DIFCCL	Not used	-0.16	0.77	-0.04	0.05	0.28	3.76	-0.03	0.04
	Completely dissatisfied	0.28	1.23	-0.29	1.43	0.49	5.99	-0.21	1.39
	Dissatisfied	0.24	0.72	-0.55	4.44	0.12	0.31	0.24	1.54
	Indifferent	0.30	2.63	-0.10	0.33	-0.16	1.14	0.21	2.62
	Satisfied	0.22	1.92	0.15	1.09	-0.17	1.85	-0.20	3.67
	Completely satisfied	-0.31	6.31	0.14	1.47	-0.09	0.90	0.05	0.38
PGOB	Not used	-0.10	0.98	-0.17	3.59	-0.14	3.15	0.01	0.03
	Completely dissatisfied	0.11	0.36	0.10	0.39	0.71	26.10	0.01	0.00
	Dissatisfied	0.33	1.07	0.05	0.03	-0.11	0.21	0.46	4.47
	Indifferent	0.37	2.33	0.37	2.63	-0.26	1.81	0.02	0.02
	Satisfied	0.27	0.79	0.32	1.25	-0.20	0.67	-0.64	9.29
	Completely satisfied	-0.36	2.07	0.28	1.50	-0.05	0.07	0.02	0.02

(Continued)

(Continued)

Variable	1 Axis		2 Axis		3 Axis		4 Axis		
OFITUR	Not used	-0.04	0.20	-0.25	7.64	-0.10	1.64	-0.01	0.01
	Completely dissatisfied	0.13	0.39	0.12	0.36	0.84	25.31	0.11	0.54
	Dissatisfied	0.56	1.76	0.42	1.12	-0.24	0.53	0.42	2.07
	Indifferent	0.42	2.75	0.32	1.78	-0.16	0.65	0.16	0.87
	Satisfied	0.09	0.15	0.35	2.59	-0.15	0.71	-0.41	6.62
	Completely satisfied	-0.41	3.92	0.43	5.04	-0.07	0.21	0.05	0.13



CUADERNOS DE ECONOMÍA

ISSN 0121-4772

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