



# Income distribution and cultural participation: evidence from Italy

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Received: 2 August 2025 / Accepted: 11 December 2025  
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## Abstract

This paper investigates the relationship between income distribution and cultural participation, using regional data from Italy spanning the period 2011–2022. Unlike traditional studies that emphasize individual factors such as personal income and education as determinants of cultural consumption, we interpret cultural participation as a social behaviour influenced by income distribution. Our findings reveal a robust significant negative effect of income inequality, measured by the Gini index, on participation in out-of-home cultural activities. The effect persists after controlling for income, education, and other factors including labour market conditions and access to digital tools. The paper also examines the mechanisms through which income distribution may shape cultural engagement and suggest policy implications for making cultural participation an effective means to foster social inclusion.

**Keywords** Income distribution · Gini index · Cultural participation · Italian regions

**JEL Classification** Z11 · R11 · R15 · L82

## 1 Introduction

This paper analyses the role of personal income distribution in shaping cultural participation behaviours within a community. Income disparities are recognized as having a negative impact on various aspects of socio-economic life: greater income

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heterogeneity—along with other facets of fragmentation—reduces different forms of participation in various communities (Alesina & La Ferrara, 2000; Uslander & Brown, 2005). However, despite these findings, the specific impact of income inequality on cultural participation remains largely underexplored.

Most of the literature, in fact, focuses on the reverse relation, that is, on how cultural participation influences socio-economic inequalities. Cultural engagement is generally viewed as a means to foster social integration and reduce disparities. For instance, European policies emphasize the role of cultural participation in enhancing social cohesion (European Council, 2017; EU Commission, 2018). However, the widely promoted motto that “cultural participation brings people together” remains far from being conclusively supported by empirical evidence. Conversely, other strands of literature suggest that segmented cultural participation not only reflects but also reinforces social stratification (Bourdieu, 1984; Katz-Gerro, 1999).

In this study, we focus on the link running from income distribution to cultural participation. We argue that cultural participation is not solely the result of individual choices shaped by personal or family factors such as income or education—variables extensively studied by available literature—but is also significantly influenced by how income is distributed within society.

Income inequality can affect cultural participation through several interconnected mechanisms. First, it creates financial barriers that limit access to cultural goods and services, particularly for lower-income groups. This includes not only ticket prices and transportation costs, but also indirect costs such as time availability and opportunity costs, which are unevenly distributed across income strata. Second, income distribution influences the formation of cultural tastes and preferences, which are shaped by early exposure to cultural capital and educational opportunities (Bourdieu, 1986; Lévy-Garboua & Montmarquette, 2003; Stigler & Becker, 1977). In unequal societies, access to high-quality education and cultural experiences tends to be concentrated among wealthier groups, reinforcing stratified consumption patterns. Third, income inequality affects the structure of social networks and the dynamics of social interaction. Borrowing Lizardo’s (2006) metaphor, cultural tastes can generate either “fences”—dense networks of strong ties within homogeneous groups—or “bridges”—broader networks of weak ties across diverse groups. In contexts of high inequality, cultural participation is more likely to generate fences than bridges, thus limiting its potential for social inclusion. Finally, inequality may influence the territorial distribution of cultural supply, with wealthier areas offering more opportunities for engagement, further exacerbating spatial disparities in participation (Brook, 2016; Iammarino et al., 2019).

In particular, this paper—drawing on a dataset composed of annual data from Italian regions observed over the period 2011–2022—documents a significant negative relationship between the Gini index of income and in-person (out-of-home) cultural participation: the higher the income concentration, the lower the levels of cultural participation. The impact of income distribution on cultural participation extends across various forms of cultural activities and the effect is robust to the consideration of additional determinants.

We emphasize that using regional data instead of country-level data is particularly appropriate for evaluating the relationship between income distribution and cultural

participation, as it reduces the risk of spurious correlations arising from institutional differences typically present in cross-country analyses. While institutional differences exist among Italian regions, they are less pronounced than those between countries, allowing for a more precise assessment of the effect of income distribution on cultural participation.

In introducing our case study, we also have to make some remarks regarding the time span under examination. We use annual data covering a decade, including 2020, 2021, and 2022—the years affected by lockdown and other restriction measures implemented to curb the spread of the Covid-19 pandemic. These restrictions, in place during 2020–22, had an exogenous impact on in-person cultural participation. Despite the uniform national regulation of these measures, significant regional differences in cultural engagement emerged.

We also note that during the decade under consideration, technology use for cultural consumption increased, with lockdowns pushing many consumers toward digital forms of cultural engagement (Cellini & Cuccia, 2025; Perez-Villadoniga et al., 2025). However, our analysis shows that access to digital resources is associated with higher levels of in-person cultural participation, supporting the hypothesis of a complementary relationship between digital cultural consumption and live attendance. Still, this finding does not alter the consistent negative effect of income inequality on cultural participation.

Beyond examining an aggregate indicator of cultural participation, our analysis also disaggregates participation by specific activities—namely, cinema, theatre, classical music concerts, pop concerts, and museum visits. This disaggregation allows us to highlight how the impact of income inequality may vary across different forms of cultural engagement.

The paper is structured as follows: Sect. 2 presents a critical review of relevant literature, supporting the motivation for the present research. Section 3 presents the methodology and the dataset. Section 4 presents the core results of the multiple regression analysis, examining income levels, education, labour market participation, and access to telematic resources as covariates, along with income distribution, in determining in-person cultural participation. A discussion on cultural participation by gender is also included. Section 5 considers an alternative measure of income distribution. Section 6 deals with participation in specific cultural activities. Section 7 discusses the results, emphasizing their connection with different lines of social research. Section 8 concludes with brief remarks.

## 2 Literature and motivation

This paper builds on three main strands of literature concerning the determinants and implications of cultural participation.

The first strand focuses on the demand for cultural goods, particularly performing arts. Empirical studies (Lévy-Garboua & Montmarquette, 2003; Seaman, 2006; Stigler & Becker, 1977) highlight the role of income, education, habit formation, and early exposure to cultural experiences in shaping individual preferences. Cultural tastes are often transmitted intergenerationally through what Bourdieu (1986) defines

as ‘embodied cultural capital’. These mechanisms are especially relevant for high-brow cultural consumption, which tends to be less price-sensitive and more strongly associated with education and social background. Additionally, cultural goods are typically classified as “normal goods”, whose demand increases with income, and are characterized by low price elasticity. These features contribute to the segmentation of cultural audiences and reinforce social stratification (Bourdieu, 1984; Katz-Gerro, 1999). Our present study aims at complementing the individual-level determinants of cultural consumption, showing that aggregate factors, like income distribution, play a significant role.

The second strand examines the broader impacts of cultural participation. Studies have linked cultural engagement to life satisfaction (Bertacchini et al., 2025), human capital accumulation (Crociana et al., 2020), and civic involvement (Campagna et al., 2020). These contributions underscore the relevance of cultural participation as a driver of individual well-being and social inclusion. However, they often treat cultural engagement as an explanatory variable, rather than investigating the structural conditions that shape access to culture. Moreover, the positive association between cultural participation and social outcomes is not always accompanied by a clear causal interpretation, and the influence may be bidirectional (Campagna et al., 2020; Crociana et al., 2020). Although our study clearly focuses on the direction running from income inequality to cultural participation, it may still offer useful insights for this strand of literature, by clarifying how access to culture is socially stratified and thus potentially influencing the inclusiveness of cultural engagement.

The third strand of literature, which is relevant to our present research, investigates the relationship between inequality and cultural participation, mainly from a sociological perspective. While much of the literature emphasizes how cultural engagement can reduce inequality, fewer studies examine the reverse direction—how inequality affects cultural access. Szlendak and Karwacki (2012), analysing 22 European countries, find a negative correlation between the Gini index and cultural participation: in more unequal societies, cultural consumption tends to be more elitist, and material goods often replace cultural engagement as status markers. Lancee and Van de Werfhorst (2012) show that income inequality reduces civic and cultural participation even when controlling for individual resources, suggesting that societal-level inequality has independent effects. OECD (2022) provides compelling cross-country evidence that cultural participation is higher not only in richer countries, but also in those with more equal income distribution. In particular, the cultural participation gap between high- and low-income individuals is sharper in countries with low overall participation and high inequality, such as Romania, Greece, and even Italy; in contrast, in more egalitarian societies, cultural access is broader and less tied to social status (see OECD, 2022, specifically Fig. 2, p. 62).

Tubadji et al. (2022) offer a regionally focused analysis for Italy, showing that cultural capital—both inherited (cultural heritage) and lived (contemporary participation)—influences regional inequality through the channel of social capital. Their findings suggest that regions with higher levels of “living culture” and lower inequality are more attractive to human capital and experience more inclusive growth. This perspective reinforces the idea that cultural participation is not only shaped by inequality, but also contributes to long-term socio-economic dynamics.

Moreover, spatial disparities in cultural access are exacerbated by the concentration of cultural supply in wealthier urban areas (Brook, 2016), and by regional divergence driven by globalization and technological change (Iammarino et al., 2019). Digital cultural consumption, while potentially mitigating access barriers, does not always expand audiences: for example De la Vega et al. (2020), among others, show that online music consumption tends to reinforce existing preferences rather than attract new users, and Ateca-Amestoy and Castiglione (2023) find that digital access to visual arts is most often used by those already culturally engaged.

Our study contributes to this third strand by empirically assessing the impact of income distribution—measured by the Gini index—on cultural participation across Italian regions. By focusing on the direction from inequality to participation, and by controlling for income levels, education, labour market conditions, and digital access, we aim to identify the structural determinants of cultural engagement, clearly understood as a social phenomenon.

### 3 Empirical strategy and data

#### 3.1 Methodology

This study aims to assess the impact of income distribution on cultural participation, focusing on aggregate (macroeconomic) variables rather than individual-level data. While previous research has documented cross-country correlations between inequality and cultural engagement (e.g., OECD, 2022), national-level analyses often suffer from institutional heterogeneity that undermines the *ceteris paribus* condition. In contrast, regional data within a single country—Italy, in the present analysis—offer a more suitable framework for isolating the effect of income distribution, as regional institutional settings are more homogeneous. The Italian case is particularly well-suited for such an analysis, given the substantial variability in income, education, labour market conditions, and cultural engagement, all within a given institutional framework.

The dependent variable in our analysis is an indicator of participation in out-of-home cultural activities. The key explanatory variable is income distribution, measured primarily through the Gini index of net household income. In a multivariate framework, we investigate how the Gini index, *ceteris paribus*, affects cultural participation; in particular, we have to control for other factors known to influence cultural engagement, notably income levels and education, which emerge to be relevant factors in individual-data based analyses.

Both cultural participation and its macroeconomic determinants vary across regions and over time. Therefore, we employ a panel data approach, which allows us to exploit both individual (i.e., regional) and temporal variation.

We wish to point out that, while the applied economics literature includes numerous contributions analysing cultural participation using individual-level data (see Seaman, 2006, and more recent works by Geraci et al., 2022, and Bakhshi et al., 2023), as well as cross-country studies (see OECD, 2022, or Bocci & Mingo, 2023), research based on regional-level analyses—and even more specifically, on regional

panel data—remains far more limited. In the Italian context, the few studies using regional data include Borowiecky and Castiglione (2014), who examine the link between cultural participation and human capital; Crociata et al. (2020), who focus on the link between cultural participation and tourism; Cerisola and Pansera (2022), who analyze the role of creative cities in regional growth and cultural participation; and Cellini and Cuccia (2025), who investigate the substitutability between in-person and online cultural participation. In all these cases, regional and time fixed effects are controlled for, along with covariates of specific interest to each study.

From a methodological standpoint, particularly regarding the estimator employed, our present work relies on well-established econometric tools; specifically, we use the two-way fixed-effects least squares estimator. Firstly, this estimator accounts for unobserved heterogeneity across regions using individual fixed effects. These capture time-invariant regional characteristics such as size and basic cultural infrastructure. The use of fixed effects is justified both theoretically and empirically: formal tests consistently confirm the necessity of including individual effects, and the regions are not randomly sampled, making random-effects estimators inappropriate. Secondly, year-specific dummy variables are included to control for time-specific factors affecting all regions; national macroeconomic shocks are examples of that. In the sample under consideration, the introduction of the lockdown measures taken to limit the spread of Covid-19 is another clear example of a shock captured by the time fixed effects. In our estimations, all tests and information criteria indicate that the full set of time fixed effects should be included: specifications considering only 2020–2022 (i.e., the years affected by attendance restrictions during the Covid-19 pandemic) are less preferable than models including all years. Accordingly, our panel-data regression is specified as follows:

$$y_{i,t} = a_i + b_t + \gamma G_{i,t} + \delta \mathbf{X}_{i,t} + e_{i,t} \quad (3.1)$$

where  $y_{i,t}$  denotes the cultural participation indicator in region  $i$  at time  $t$ ;  $a_i$  and  $b_t$  denote the regional and time fixed effect coefficients, respectively;  $G_{i,t}$  is the Gini index and  $\mathbf{X}_{i,t}$  denotes a vector of other control variables—including the real per capita income, in the baseline model;  $e_{i,t}$  is the error term, assumed to be normally distributed. It is worth mentioning that—in all but just two of the cases presented below—the appropriate tests do not reject the null hypothesis of normally distributed residuals; moreover, in all cases, the tests do not reject the null hypothesis of no time autocorrelation in residuals.

To ensure the robustness of our findings, we will extend the baseline specification in four directions. First, we incorporate additional covariates—beyond income—that recent literature identifies as relevant, including labour market indicators such as the NEET rate and unemployment rate, as well as variables capturing digital access, namely household internet and broadband penetration, which facilitate access to digital cultural products that may substitute for or complement in-person cultural participation. These controls allow us to account for broader socio-economic factors that may influence cultural participation.

Second, we explore the role of gender by estimating separate regressions for male and female cultural participation. This disaggregation enables us to assess whether

income inequality exerts different effects across genders and whether cultural engagement patterns vary accordingly.

Third, we test an alternative indicator of income distribution. The choice of the Gini index in the baseline specification is primarily driven by its widespread adoption in literature as the standard measure of inequality. It provides a consistent and internationally comparable metric based on equalised disposable income. However, the Gini index is not without shortcomings—some of which are partially mitigated by statistical agencies during computation (notably those related to tax evasion and under-reporting of capital income), while others are intrinsic to the index itself. For example, it has limited sensitivity to changes at the extremes of the income distribution, and different income profiles can yield identical Gini values. To address these limitations and enrich the analysis, we complement the Gini index with an alternative measure: the ratio of income accruing to the top and bottom quintiles of the population. This indicator captures the disparity between the richest and poorest segments more directly and offers additional insights, while also serving as a robustness check for the baseline results.

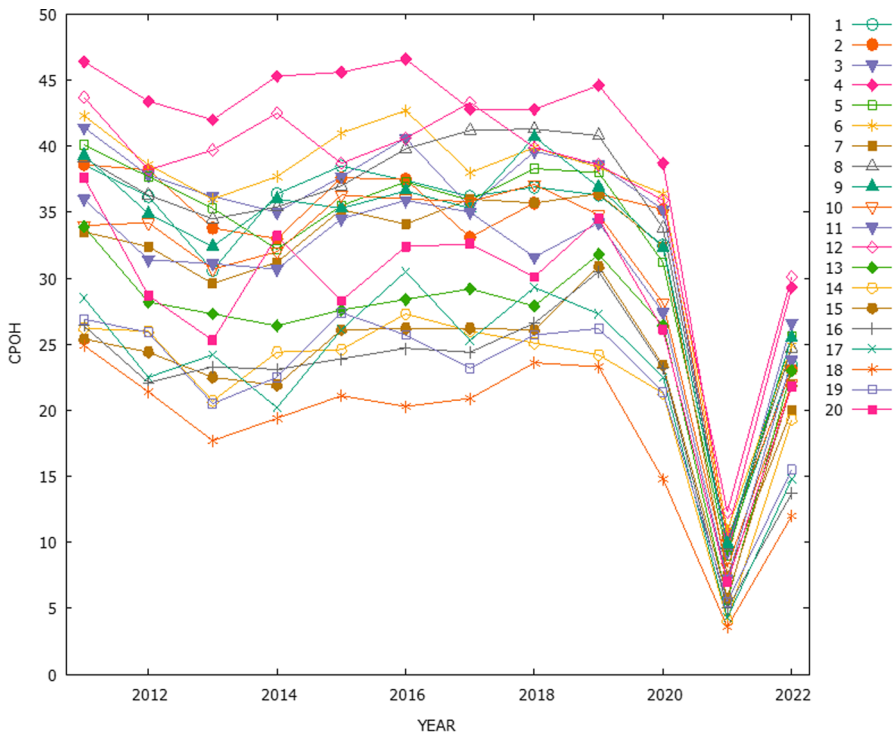
Finally, we disaggregate the dependent variable to examine participation in specific cultural activities, including cinema, theatre, classical music concerts, pop music concerts, and museum visits. This allows us to investigate whether the impact of income inequality differs across cultural forms.

These extensions will provide a comprehensive framework for validating the consistency of our results and for exploring the mechanisms through which income distribution may shape cultural engagement.

### 3.2 Data

Due to the availability of homogeneous data, the time under consideration covers the span 2011–22 for which complete annual data for each region are easily downloadable from the website of the Italian National Institute of Statistics, ISTAT, [www.esploradati.istat.it](http://www.esploradati.istat.it). The specific source from which each series is drawn is here reported in Table 8 in Appendix, which provides the list of variables used with their acronyms and descriptions. Since the time dimension of our sample is equal to 12 annual observations ( $t=[2011, 2022]$ ) and the Italian regions are 20 ( $i=[1, 20]$ ), the resulting dataset is a balanced panel of 240 observations.

The variable of primary interest in the present study is the percentage of individuals who are defined as ‘active subjects in cultural activities outside the home’; this variable is here denoted by *CPOH* (standing for ‘cultural participation outside the home’). Specifically, according to the *Survey on aspects of daily life* conducted by ISTAT, individuals (aged 6 and older) are considered active if, in the 12 months preceding the survey, they report having engaged in at least two of the following six activities: (1) attending the cinema at least four times; (2) going to the theatre at least once; (3) visiting museums and/or exhibitions; (4) exploring archaeological sites or monuments; (5) attending classical music or opera concerts; (6) attending concerts of other music genres. The pattern of the *CPOH* variable across the 20 Italian regions is illustrated in Fig. 1, and some basic statistics are reported in Table 1. Clearly, the statistics (and specifically, the minimum values) are impacted by the measures in place



**Fig. 1** Cultural participation in regions over time. Note: The graph shows the pattern of *CPOH* for the 20 Italian regions. Regions are: 1. Piemonte, 2. Valdaosta, 3. Lombarda, 4. Trentino A.A., 5. Veneto, 6. Friuli V.G., 7. Liguria, 8. Emilia R., 9. Toscana, 10. Umbria, 11. Marche, 12. Lazio, 13. Abruzzo, 14. Molise, 15. Campania, 16. Puglia, 17. Basilicata, 18. Calabria, 19. Sicilia, 20. Sardegna

**Table 1** Statistics of variables on cultural participation

	Mean	Median	Min	Min (2011–19)	Max	Std Dev
<i>CPOH</i>	29.50	31.15	3.60	17.70	46.60	9.567
<i>CPOH_M</i>	29.31	30.90	4.00	17.50	46.10	9.397
<i>CPOH_F</i>	29.67	31.75	2.60	17.90	48.30	9.850
<i>CP_CIN</i>	42.62	46.90	4.40	35.30	61.80	12.44
<i>CP_THEA</i>	16.60	17.10	1.10	7.90	33.70	6.484
<i>CP_MUSCLA</i>	8.178	8.400	1.40	4.40	16.00	2.730
<i>CP_MUSPOP</i>	17.74	18.95	2.50	13.40	30.80	5.773
<i>CP_MUSEUM</i>	26.38	27.77	2.70	13.20	45.20	9.481

during 2020, 2021 and 2022, to contain the Covid-19 pandemic spread, which legally restricted attendance in public places and, consequently, impacted on the in-person consumption of cultural products. This is why Table 1 also includes the minimum values recorded if omitting the years when restriction measures were in place.

The graph in Fig. 1 shows significant regional variation in cultural participation outside the home. In 2011, the indicator ranged from 24.6 in Calabria to 46.4 in Trentino-AltoAdige. A similar pattern appeared in 2019, just before lockdown measures,

with values between 23.3 and 44.6 in the same regions. By 2022, after most restrictions had lifted but recovery remained partial, the range extremes shifted to 12.0 (Calabria) and 30.1 (Lazio). Hence *CPOH* reveals substantial variability both among territorial areas and over time. It is interesting to notice that variability across regions also holds during the lockdown years. While national lockdown rules were uniformly applied during certain months, regional regulations varied in other periods due to differing epidemiological circumstances, with southern regions generally facing less stringent restrictions, owing to milder climate and lower pandemic intensity. Yet, despite these relatively looser constraints, cultural participation remained significantly lower in the South: the eight southern regions consistently occupied the bottom eight positions in terms of *CPOH* during the pandemic years. This pattern suggests that socio-cultural factors may exert a stronger influence on participation behaviours than formal regulatory frameworks, even under exceptional circumstances.

It goes without saying that the variable *CPOH* may face various criticisms; however, these criticisms do not undermine its relevance in representing ‘cultural participation’ in a broad sense.

The first criticism concerns the composite nature of the *CPOH* indicator and the diversity of the six cultural activities considered. Nevertheless, when we analyse the different cultural activities individually—even if they differ in quantitative size—the patterns and the determining effects are remarkably similar. Thus, the synthetic indicator remains a concise yet adequate measure of cultural participation outside the home. Notably, it also correlates highly with variables reflecting other aspects of cultural consumption. For example, the percentage of the population claiming to have read a book in the previous 12 months has a simple correlation of +0.670 ( $p=0.000$ ) with *CPOH* in our panel data set.

Second, *CPOH* reflects a ‘passive’ form of cultural participation, focusing on demand rather than supply. However, in artistic activities, consuming an artistic good often stimulates its production, and the correlation between demand activities and the production of various artistic goods and services is widely documented (see, e.g., OECD, 2022, and—specifically for the Italian regions—Bellandi & Santini, 2017, Cellini & Cuccia, 2019, ISTAT, 2022, Bertacchini et al., 2025).

A third criticism points out that *CPOH* examines in-person cultural consumption and does not account for digital consumption behaviours, e.g., online consumption of movies or music. However, it is important to highlight that several studies (see e.g. Bakhshi & Throsby, 2014; Nguyen et al., 2014), including studies specifically related to the Italian regions (e.g., Cellini & Cuccia, 2025), find that in-person and online cultural consumption are complementary and tend to move together.

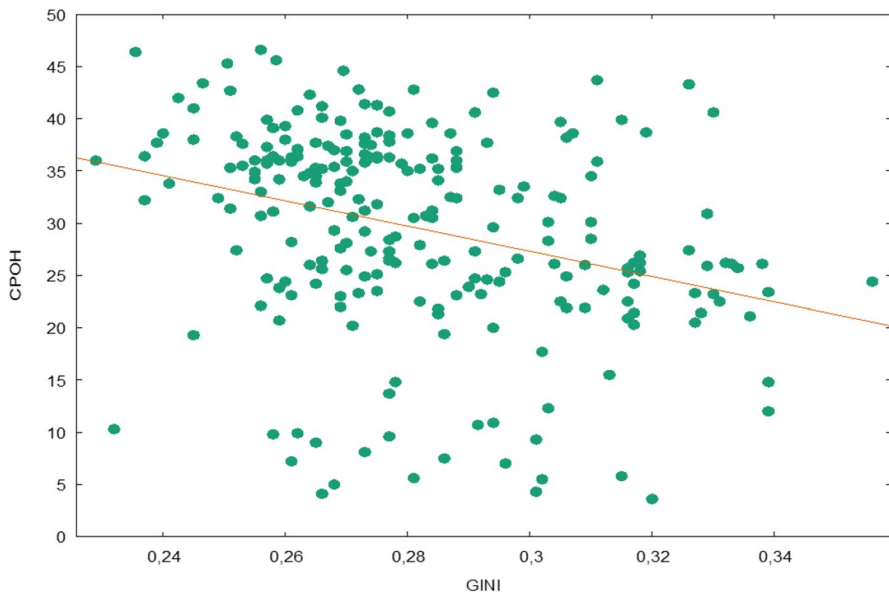
Given these considerations, we believe *CPOH* is a reasonable proxy for cultural participation. Notably, it has also been used in other recent analyses (e.g., Ferraro et al., 2019).

The second variable we present here is the income distribution indicator used in our estimates, *GINI*, the Gini index. As is well known, the Gini index is a measure of concentration. ISTAT calculates it as defined in various ways. As to the construction, ISTAT resorts to survey data (specifically, the EU-SILC survey) complemented by data from administrative sources. The indicator is based on equivalized disposable income, which adjusts household income using the modified OECD scale and includes

taxes, transfers, and possibly imputed rents for homeowners. Data are weighted to correct for non-response and ensure representativeness. In the present analysis, we consider the Gini index of net household income, including imputed rents for owner-occupied housing. However, our results prove to be robust to different versions of the Gini index, such as those excluding imputed rents. The values of the *GINI* variable in our present dataset show notable variability both across regions and over time, generally fluctuating between a minimum value of 0.229 (Veneto, 2013) and a maximum of 0.356 (Campania, 2012), with differing trends between regions.

As previously emphasized, the main message of the present study is that distributive inequality exerts a significant negative influence on cultural participation. To introduce this relationship, we present the scatter plot in Fig. 2, which illustrates the unconditional correlation between inequality and cultural participation over the entire time period in all regions. This visual evidence suggests a clear negative association; however, it has to be interpreted merely as a preliminary indication, as the strength and nature of the relationship must be assessed within a properly controlled framework. As we will show in the regression analysis, the finding that regions with higher income concentration exhibit lower levels of cultural participation holds even when controlling for other relevant factors, notably income levels.

We are well aware that the Gini index, when applied to income, captures only one dimension of distributive inequality. Therefore, we plan to include an additional measure in our robustness checks: the ratio between the average income of the top quintile and that of the bottom quintile in the household income distribution, here denoted as *S8020*, and still sourced from ISTAT, based on the same income data used



**Fig. 2** Cultural participation vs. Gini Index (all observations)

to compute the Gini index. While the Gini index is an appropriate measure of overall concentration, the *S8020* ratio focuses on a specific aspect of inequality—the gap between the extremes of the distribution—and thus provides complementary information that the Gini alone does not convey. Moreover, as noted by Atkinson (1970), the Gini index is more sensitive to variations in the middle of the distribution than at its extremes. Consequently, substantial changes among the richest and poorest may be underestimated by the Gini index, whereas the *S8020* ratio directly addresses this limitation and becomes particularly informative in light of recent trends in income distribution, characterized by increasing concentration at very high levels of income (see also Atkinson & Piketty, 2014).

Regarding income, the empirical correspondent variable that we use in the present study is the real per capita income (base year 2015), as computed and published by ISTAT. As well documented in the literature, substantial and persistent disparities characterise nominal and real regional income levels in Italy (see, e.g., Accetturo et al., 2024). In the first year of the time period under present consideration, average personal income ranged from €17,282 in Calabria to €40,258 in Valdaosta. The decade in question, in Italy, was marked by sluggish annual income growth, a sharp decline in 2020, and a persistent lack of regional convergence: in the final year of the present sample, the lowest and the highest values were €17,181 (in Calabria) and 43,468 (in Trentino-AltoAdige), respectively. In the following analysis, real per capita income is expressed in logarithm and denoted by *LY*.

Basic statistics on the income variable are reported in Table 2, along with the statistics of other variables used as covariates in the multiple regression analysis. Regional differences affect a broad set of variables, not just income. Southern regions of Italy, characterized by lower income levels, also show lower labour force participation rates and higher NEET (Not in Education, Employment, or Training) rates. Importantly, they also exhibit lower school enrolment rates and, consequently, lower educational attainment. This occurs despite the fact that all Italian regions share the same official educational system and programs. Overall, the well-established image of Italy as a country with a dual economy remains justified, with the southern regions experiencing a developmental lag.

**Table 2** Statistics of covariate variables

	Mean	Median	Min	Max	Std Dev
<i>LY</i>	10.169	10.231	9.363	10.68	0.281
<i>GINI</i>	0.282	0.277	0.229	0.356	0.025
<i>S8020</i>	5.215	4.800	3.200	10.00	1.211
<i>SCHUNIV</i>	17.952	17.600	11.60	27.00	3.104
<i>SCHSEC</i>	60.480	62.126	45.97	71.64	6.824
<i>NEET</i>	22.407	20.000	10.50	40.30	7.635
<i>UNEMPL</i>	10.89	9.43	3.00	23.42	5.078
<i>WEB_FAM</i>	68.72	69.40	44.20	88.90	10.36
<i>WEB_BB</i>	66.24	68.40	33.10	86.30	12.02

## 4 Multiple regression analysis

This section investigates the relationship between income distribution and cultural participation in a multivariate context. Our goal is to assess whether income distribution, *ceteris paribus*, influences cultural participation.

The *ceteris paribus* condition first requires controlling for factors that vary across regions but remain constant over time (individual fixed effects). A simple example is regional size, which may influence local economies of scale. Formal institutions, such as regional regulations, are additional factors captured by fixed effects. For this reason, the appropriate estimator, even for ex-ante theoretical reasons, is the fixed-effects estimator, which allows for a different constant term for each region. In all cases at hand, formal tests confirm the necessity of including individual effects.

Similarly, different years are characterized by factors that vary annually but not across regions—for example, common macroeconomic shocks. The sample also includes years during which social distancing measures were in place due to the Covid-19 lockdown. We evaluated whether it would be sufficient to include time dummies only for these three years; however, regression statistics—and, in particular, information criteria—consistently suggest that it is preferable to include time dummies for all years.

As discussed above, beyond accounting for individual and time fixed effects, we incorporate a range of covariates whose importance is documented in the existing literature.

### 4.1 Income and education

In investigating the role of income distribution upon cultural participation, we need to control for the effect of income levels, as a variation in income distribution caused by changes in income levels could lead to different participation rates solely due to spending capacity. The inclusion of the income control variable specifically serves to account for the effect of income levels.

In light of this, Table 3 presents the results of the basic specification of the regression equation, where cultural participation is the dependent variable, influenced by income levels and income distribution. The complete set of estimated individual and time fixed effects for all specifications is presented in Table 9 in the Appendix.

The results concerning the effect of income are clear: As expected, higher income levels boost participation in cultural activities. More important in our present research, the concentration in income distribution, as measured by the Gini index, emerges as a negative and statistically significant (at the 1% level) factor. Regarding the magnitude of the estimated coefficient, note that—given the units of measurement adopted for the variables involved—the coefficient of the Gini variable should be interpreted as follows: An increase of one point in the Gini index, for example, moving from 0.27 to 0.28, implies a change in the cultural participation indicator equal to  $-0.49$  in the case of the regression in Column 1, thus, for instance, moving from 29.50 to 29.01. Although this variation may seem quantitatively modest, it is far from being negligible.

**Table 3** Multiple regression analysis: the effect of income and education

Dependent variable: <i>CPOH</i>					
Model:	(1)	(2)	(3)	(4)	(5)
Regional Fixed Effects	Yes	Yes	Yes	Yes	Yes
Time Fixed effects	Yes	Yes	Yes	Yes	Yes
<i>LY</i>	11.78 (1.85)*	11.83 (1.87)*	13.63 (2.10)**		
<i>GINI</i>	- 49.16 (- 4.23)***	- 49.37 (- 4.28)***	- 48.48 (- 4.18)***	- 47.90 (- 4.14)***	- 47.07 (- 4.03)***
<i>SCHUNIV</i>		- 0.37 (- 1.89)*		- 0.37 (- 1.17) <sup>ns</sup>	
<i>SCHSEC</i>			- 18.56 (- 1.38) <sup>ns</sup>		- 12.75 (- 0.96) <sup>ns</sup>
N. Obs	240	240	240	240	240
R2	0.961	0.962	0.962	0.961	0.961
F-test	160.93***	158.1***	156.8***	161.0***	159.9***
Test on regional fixed effects	$F_{19,207}=14.13$ ( $p=.000$ )***	$F_{19,206}=14.1$ ( $p=.000$ )***	$F_{19,206}=14.1$ ( $p=.000$ )***	$F_{19,207}=48.1$ ( $p=.000$ )***	$F_{19,207}=46.5$ ( $p=.000$ )***
Test on time fixed effects	$F_{11,207}=283.0$ ( $p=.000$ )***	$F_{11,206}=228.4$ ( $p=.000$ )***	$F_{11,206}=223.5$ ( $p=.000$ )***	$F_{11,206}=279.8$ ( $p=.000$ )***	$F_{11,226}=267.3$ ( $p=.000$ )***
Test on residuals' normal distribution	$\chi^2(2) = 4.09$ ( $p=0.129$ ) <sup>ns</sup>	$\chi^2(2) = 3.14$ ( $p=0.208$ ) <sup>ns</sup>	$\chi^2(2) = 3.00$ ( $p=0.223$ ) <sup>ns</sup>	$\chi^2(2) = 3.12$ ( $p=0.210$ ) <sup>ns</sup>	$\chi^2(2) = 3.19$ ( $p=0.202$ ) <sup>ns</sup>
Test on residuals' time autocorrelation	$F_{1,19}=0.001$ ( $p=.975$ ) <sup>ns</sup>	$F_{1,19}=0.004$ ( $p=.949$ ) <sup>ns</sup>	$F_{1,19}=0.000$ ( $p=.999$ ) <sup>ns</sup>	$F_{1,19}=0.006$ ( $p=.937$ ) <sup>ns</sup>	$F_{1,19}=0.017$ ( $p=.897$ ) <sup>ns</sup>
Akaike info criterion	1049.3	1047.1	1049.0	1049.2	1052.1
Schwarz info criterion	1164.1	1165.5	1167.4	1164.0	1167.0

*t*-stat in parenthesis; \*, \*\*, \*\*\* denote statistical significance at the 10%, 5%, 1% level respectively; ns stands for 'not statistically significant'

Several contributions in the cultural economics literature, particularly those based on evidence from individual microdata, indicate that education-related variables have a great influence on individual demand for cultural goods and services, even larger than income-related variables (see, e.g., Seaman, 2006; D'Angelo et al., 2010; Falk & Katz-Gerro, 2016). Clearly, income and education variables are correlated, as shown by several empirical analyses in many case studies. Even the dataset under present consideration confirms this strong correlation between income and education.

In this study, we consider two education-related variables: the percentage of university graduates in the population aged 30–34 (*SCHUNIV*), and the percentage of secondary high-school graduates in the population aged 25–64 (*SCHSEC*). Analogous indicators are commonly used in macroeconomic studies accounting for education (see, e.g., Campagna et al., 2020, D'Angelo et al., 2010, and Cellini & Cuccia, 2025, for analyses related to cultural participation). Concerning both variables, annual data for all Italian regions are available for the period under scrutiny. In our present dataset, the simple (pooled) correlation between these two variables on education is 0.874, very high and statistically significant, hence it is not surprising that the results are very similar, regardless of whether we consider the percentage of population with secondary school attainment or university graduates.

The correlation between real per capita income and education levels in the regional panel under examination is very high and statistically significant too:  $\text{Corr}(LY,$

$SCHUNIV$ )=0.538 ( $p=0.000$ ),  $\text{Corr}(LY, SCHSEC)=0.680$  ( $p=0.000$ ). Hence, *prima facie*, as income and education grow, cultural participation increases.

More articulated analyses available in the literature show that the effect of income and education may be different according to participation in different cultural activities. For instance, Suarez-Fernandez et al. (2020) point out that the impact of education differs across types of activities, with its marginal effect being more pronounced for highbrow activities than for lowbrow cultural activities.

In our analysis, however, education variables do not turn out to be significant when included in multiple regressions with time and regional fixed effects and income among the regressors (see Table 3, Columns 2 and 3). As a side note, education remains insignificant even when income is excluded, provided that regional and time fixed effects are included (see Columns 4 and 5 of Table 3). In any case, for the reasons discussed earlier, we consider it inappropriate to include the Gini index for income without also controlling for income level. Nonetheless—and this is the most important finding here—the Gini index remains consistently negative and significant across all specifications, irrespective of whether educational variables are included or not, with or without income.

Lastly, the estimated values of the time fixed effects (see Table 9 in the Appendix) indicate that, unsurprisingly, participation was markedly lower during the lockdown years across all models. Similarly, when examining the individual fixed effects, some regions (e.g., Lazio) exhibit systematically higher-than-average effects, whereas southern regions tend to show lower values.

## 4.2 Online cultural consumption

It can be easily argued that the internet access, by expanding access to cultural products, could influence in-person cultural participation. However, we already mentioned that empirical evidence on the ability of digital cultural consumption in entailing audience expansion is mixed (see, e.g. Ateca-Amestoy & Castiglione, 2023, and De la Vega et al., 2020, for the cases of museum and music). More generally, we report that the literature presents two opposing views: one sees a substitution effect, where digital consumption replaces live experiences, while the other suggests a complementary relationship, where online consumption complements in-person attendance. For instance, Bauernschuster et al. (2014) find that broadband in Germany boosts social interactions and increases theatre and exhibition attendance. Conversely, Geraci et al., (2018, 2022) show little to no impact of online cultural consumption in the UK, with, at most, some evidence of declining cinema visits. Thus, while Bauernschuster et al. (2014) highlight positive effects, Geraci et al., (2018, 2022) suggest limited or negative ones.

Resorting to our dataset, we can assess the impact of household internet access and broadband services on in-person cultural participation. In both cases, these variables have a positive and significant effect on live cultural participation (see Table 4, Columns 6 and 7), supporting the notion of complementarity between the two. However, what is most important here is that the inclusion of these variables does not change the negative and significant effect of income inequality on live cultural participation. Moreover, accounting for internet accessibility does not alter the positive

**Table 4** Additional determinants on cultural participation

Dependent variable: <i>CPOH</i>					
Model:	(6)	(7)	(8)	(9)	(10)
Regional Fixed Effects	Yes	Yes	Yes	Yes	Yes
Time Fixed effects	Yes	Yes	Yes	Yes	Yes
<i>LY</i>	6.55 (1.07) <sup>ns</sup>	7.25 (1.22) <sup>ns</sup>	8.45 (1.29) <sup>ns</sup>	8.43 (1.21) <sup>ns</sup>	3.79 (0.62) <sup>ns</sup>
<i>GINI</i>	-39.74 (-3.59) <sup>***</sup>	-34.00 (-3.09) <sup>***</sup>	-47.02 (-4.06) <sup>***</sup>	-48.37 (-4.16) <sup>***</sup>	-31.74 (-2.89) <sup>***</sup>
<i>WEB_FAM</i>	0.43 (5.23) <sup>***</sup>				
<i>WEB_BB</i>		0.44 (6.04) <sup>***</sup>			0.44 (6.12) <sup>***</sup>
<i>NEET</i>			-0.22 (-1.96) <sup>*</sup>		-0.23 (-2.19) <sup>**</sup>
<i>UNEMPL</i>				-0.18 (-1.16) <sup>ns</sup>	
N. Obs	240	240	240	240	240
R2	0.966	0.967	0.962	0.961	0.968
F-test: <i>p</i> -value	0.000 <sup>***</sup>	0.000 <sup>***</sup>	0.000 <sup>***</sup>	0.000 <sup>***</sup>	0.000 <sup>***</sup>
Test on regional fixed effects: <i>p</i> -value	0.000 <sup>***</sup>	0.000 <sup>***</sup>	0.000 <sup>***</sup>	0.000 <sup>***</sup>	0.000 <sup>***</sup>
Test on time fixed effects: <i>p</i> -value	0.000 <sup>***</sup>	0.000 <sup>***</sup>	0.000 <sup>***</sup>	0.000 <sup>***</sup>	0.000 <sup>***</sup>
Test on residuals' normal distri- bution: <i>p</i> -value	0.148 <sup>ns</sup>	0.232 <sup>ns</sup>	0.131 <sup>ns</sup>	0.151 <sup>ns</sup>	0.356 <sup>ns</sup>
Test on residuals' autocorrela- tion: <i>p</i> -value	0.167 <sup>ns</sup>	0.684 <sup>ns</sup>	0.347 <sup>ns</sup>	0.599 <sup>ns</sup>	0.434 <sup>ns</sup>
Akaike info criterion	1021.4	1012.1	1046.8	1049.7	1008.6
Schwarz info criterion	1139.7	1130.5	1165.2	1168.1	1130.4

*t*-stat in parenthesis; \*, \*\*, \*\*\* denote statistical significance at the 10%, 5%, 1% level respectively; ns stays for 'not statistically significant'

effect of income, although the significance of this variable diminishes.<sup>1</sup> This finding closely aligns with the arguments of Ateca-Amestoy & Prieto-Rodríguez (2024), who show that the same social factors that hinder in-person cultural participation also impede online cultural engagement, underscoring the persistence of structural barriers across access modes and the similarity of the determinants of both forms of cultural engagement.

### 4.3 Participation in labour market

A second group of variables suggested by the literature to influence cultural participation relates to labour market conditions. We thus evaluated the effect of the NEET

<sup>1</sup> Note that in this case—exactly as in the specifications reported in Columns 8, 9, and 10 of Table 4—if the models were to include time fixed effects only for the COVID years (2020, 2021, and 2022), the income variable would become positive and statistically significant at the 1% level. This suggests that part of the significant effect exerted by income—which increased during 2012–2019—on cultural participation is absorbed by the time fixed effects. However, specifications that omit time fixed effects for many years in the sample do not appear justified and would also be non-preferable according to information criteria.

rate (young people not in education, employment, or training) and the unemployment rate on out-of-home cultural participation (Column 8 and 9 of Table 4). The available economic literature suggests two possible, opposing effects: on one hand, increased free time (for both NEETs and the unemployed) could allow for greater participation in cultural events. On the other hand, income effects and lack of motivation and education may discourage cultural participation, similarly to social and political participation. In our case, the evidence supports the latter view, as both the unemployment rate and the incidence of NEETs have a consistently negative effect—which is statistically significant in the case of the NEET variable—on the cultural participation outside home.

Once again, the inclusion of these factors in the multiple regressions does not alter the negative and significant effect of the Gini index of income across all specifications.

As a final step, following a “general-to-specific” modelling approach, we start by jointly including all explanatory variables listed in Models (1) to (9) of Tables 3 and 4, then progressively omit those with lower significance, arriving at specification (10). Here, *NEET* continues to show a negative effect and *WEB\_BB* a positive one, both statistically significant, while *LY* remains positive but not significant. However, the most striking element, in our view, is the persistent and statistically significant negative effect of the income distribution indicator across all specifications, highlighting the robustness of this result and its importance for understanding cultural participation.

#### 4.4 Participation from a gender perspective

We consider relevant examining whether income distribution has a different impact on cultural participation for men and women. Investigating consumption choices, specifically cultural ones, from a gender perspective is reasonable, as some documented differences exist. For instance, empirical evidence suggests that women are slightly more inclined than men to attend cultural events, either alone or with their spouse (Lazzaro & Frateschi, 2017; see also Ateca-Amestoy & Ugidos, 2021). Additionally, studies indicate that women have a markedly greater preference for classical music and theatre compared to men (Heilbrun & Gray, 2001). Furthermore, the female labour participation rate has a stronger positive effect on the share of household consumption allocated to cultural and entertainment activities than the male labour participation rate (Cellini & Cuccia, 2021). However, to our knowledge, no scientific studies demonstrate that women’s overall cultural participation, broadly defined, is systematically and significantly higher than men’s. Even Seaman’s (2006) extensive review—or the more up-to-date review by Ateca-Amestoy (2020)—supports such a conclusion.

Our data largely confirm this fact. Specifically, data on the *CPOH* variable, available separately for men and women (*CPOH\_M*, *CPOH\_F*, respectively), reveal that women’s participation is only slightly higher than men’s, with mean values of 29.67 for women and 29.31 for men, and median values of 31.75 and 30.90, respectively (Table 1). Interestingly, women were more responsive to the Covid-19 shock: despite

their higher participation rates, they reduced in-person cultural engagement more markedly during the lockdown, possibly due to greater caution or heavier caregiving burden. However, the overall trend and regional variability in participation rates, as defined by variable *CPOH*, is very similar for both genders.

Adopting our multiple regression design, Table 5 shows that the coefficient for the Gini index is consistently negative and statistically significant (at least at the 10% level) for both genders. We report, separately for men and women, both the baseline specification presented in Table 3 and the specification (10) with additional covariates shown in Table 4. What stands out is not only the sign and significance of the Gini index, but also the remarkable similarity in the magnitudes of their coefficients across the male and female cases, in the corresponding specifications. This striking

**Table 5** Regression from a gender perspective

Dependent variable:	<i>CPOH_M</i>		<i>CPOH_F</i>	
	(11)	(12)	(13)	(14)
Regional Fixed Effects	Yes	Yes	Yes	Yes
Time Fixed effects	Yes	Yes	Yes	Yes
<i>LY</i>	12.90 (1.81)*	5.01 (0.72) <sup>ns</sup>	11.22 (1.64) <sup>ns</sup>	3.07 (0.47) <sup>ns</sup>
<i>GINI</i>	- 48.91 (- 3.76)***	- 32.03 (- 2.53)**	- 49.62 (- 3.98)**	- 31.68 (- 2.67)***
<i>WEB_BB</i>		0.42 (5.11)***		0.46 (5.84)***
<i>NEET</i>		- 0.23 (- 1.95)*		- 0.23 (- 2.02)**
N. Obs	240	240	240	240
R2	0.950	0.956	0.958	0.965
F-test: <i>p</i> -value	0.000***	0.000***	0.000***	0.000***
Test on regional fixed effects: <i>p</i> -value	0.000***	0.000***	0.000***	0.000***
Test on time fixed effects: <i>p</i> -value	0.000***	0.000***	0.000***	0.000***
Test on residuals' normal distribution: <i>p</i> -value	0.282 <sup>ns</sup>	0.210 <sup>ns</sup>	0.046**	0.157 <sup>ns</sup>
Test on residuals' autocorrel: <i>p</i> -value	0.575 <sup>ns</sup>	0.351 <sup>ns</sup>	0.792 <sup>ns</sup>	0.240 <sup>ns</sup>
Akaike info criterion	1104.4	1076.0	1083.6	1046.9
Schwarz info criterion	1219.3	1197.8	1198.5	1168.8

*t*-stat in parenthesis; \*, \*\*, \*\*\* denote statistical significance at the 10%, 5%, 1% level respectively; ns stays for 'not statistically significant'

consistency allows us to conclude with confidence that no substantial gender differences emerge in this context with respect to the effect of income distribution.<sup>2</sup>

## 5 Alternative measures of income distribution

As an additional check, we now examine how an alternative indicator of income distribution affects cultural participation. Specifically, we consider the ratio between the average income of the top quintile and the bottom quintile of the household income distribution, denoted by *S8020*. Obviously, the higher this ratio, the more unequal the income distribution is. As already mentioned, while the Gini index is a proper measure of overall concentration, the ratio between the top and bottom quintiles captures a very specific aspect of inequality—the disparity between the extremes of the distribution—and could therefore provide complementary information that the Gini does not convey. This makes the inclusion of *S8020* not only a robustness check for the results obtained with the Gini index, but also a way to enrich the analysis by highlighting dynamics that are relevant at the tails of the distribution, and its consideration is particularly relevant given recent trends of rising concentration at very high income levels (see also Atkinson & Piketty, 2014).

In our present dataset, the values of *S8020* differ significantly across regions (for example, in the initial year, it ranges from 4.1 in Trentino-AltoAdige to 7.6 in Campania); moreover, it is worth reporting that the indicator increased for all regions during the first five years under review, stabilized, and then temporarily decreased during the income support interventions of expansionary fiscal policies in 2020–22, in correspondence to the Covid-19 shock. The simple correlation of *S8020* with *GINI* within the data panel is 0.905, so it is unsurprising that the results are similar: even when measured by the ratio between the top and the last quintile of income levels, greater inequality significantly drives to lower cultural participation, *ceteris paribus* (Table 6).

Table 6 reports the results for two specifications. Specification (15) includes individual and temporal fixed effects, the indicator of income distribution disparity, and income level only; specification (16) additionally incorporates the percentage of NEETs and the share of households with broadband internet access. The education attainment variables (percentage of graduates or holders of a secondary school diploma), when included together with income and regional and time fixed effects, turn out to be statistically insignificant. Similarly, the other covariates considered in previous models (such as unemployment rate and internet access) never reach statistical significance.

The evidence emerging from the present dataset is clear-cut: even when inequality is measured by *S8020*, income distribution significantly hinders cultural participation: changes at the extremes of the income distribution do matter on cultural participation.

<sup>2</sup>Formally, the equality of the coefficients can be assessed by estimating equations corresponding to models (11) and (13) as a system, and then similarly models (12) and (14), and performing a Chi-squared Wald test on the equality of the Gini regressor coefficients. In both cases, the test does not reject the null hypothesis of equality between the two coefficients, with  $p=0.965$  in the first case and  $p=0.970$  in the second.

**Table 6** Alternative measures of distribution

Dependent variable: <i>CPOH</i>		
Model:	(15)	(16)
Regional Fixed Effects	Yes	Yes
Time Fixed effects	Yes	Yes
<i>LY</i>	12.36 (1.84)*	6.38 (1.00) <sup>ns</sup>
<i>S8020</i>	- 0.728 (- 3.00)***	- 0.436 (- 1.92)*
<i>WEB_BB</i>		0.47 (6.17)***
<i>NEET</i>		- 0.19 (- 1.69)*
N. Obs	220	220
R2	0.963	0.970
F-test: <i>p</i> -value	0.000***	0.000***
Test on regional fixed effects: <i>p</i> -value	0.000***	0.000***
Test on time fixed effects: <i>p</i> -value	0.000***	0.000***
Test on residuals' normal distribution: <i>p</i> -value	0.033**	0.247 <sup>ns</sup>
Test on residuals' autocorrel: <i>p</i> -value	0.551 <sup>ns</sup>	0.620 <sup>ns</sup>
Akaike info criterion	957.3	918.6
Schwarz info criterion	1065.1	1034.0

*t*-stat in parenthesis; \*, \*\*, \*\*\* denote statistical significance at the 10%, 5%, 1% level respectively; ns stays for 'not statistically significant'.

However, comparing the effects of the two indicators of income distribution inequality—that is, *GINI* and *S8020*—on cultural participation is far from straightforward. The two measures not only capture different dimensions of inequality, but they are also expressed on different scales: *GINI* ranges from 0 to 1 by construction, whereas *S8020* is a ratio that can theoretically vary from zero to infinity. Therefore, the relative importance of each indicator cannot be inferred by simply comparing their regression coefficients. To enable a meaningful comparison, we rely on the measure of elasticity. Using specifications (1) and (14) and considering the sample mean values of the relevant variables, the point elasticity of cultural participation with respect to the Gini index turns out to be  $-0.46$ , while the elasticity with respect to *S8020* turns out to be  $-0.12$ , both statistically significant at the 5% level. This result is not entirely unexpected and may have a straightforward economic explanation. Overall cultural participation reflects the behaviour of the population as a whole rather than only the extremes of the income distribution. Accordingly, the Gini index, which captures overall inequality, unsurprisingly exerts a stronger influence than the inter-quintile ratio, which focuses exclusively on the gap between the richest and poorest quintiles. Indeed, cultural behaviour at the extremes is likely less responsive to income changes than that of middle-income groups: the poorest already participate very little and would continue to do so even if their income declined, while the richest already participate and any increase in their income would likely raise consumption expenditure rather than participation rates. Therefore, it is already a noteworthy finding that distributive inequality as measured by *S8020* emerges as a significant (negative) determinant of participation, and it is not surprising that its quantitative effect, as measured in terms of elasticity, is smaller than that associated with the Gini index.

**Table 7** Attendance at different cultural events

Dependent variable:		<i>CP_CIN</i> (Cinema)	<i>CP_THEA</i> (Theatre)	<i>CP_MUS-CLA</i> (Class. music)	<i>CP_MUS-POP</i> (Pop music)	<i>CP_MU-SEUM</i> (Museum)
Model:		(17)	(18)	(19)	(20)	(21)
<i>(A)</i>						
Coefficients	<i>LY</i>	21.02 (3.08)***	2.82 (0.51) <sup>ns</sup>	1.97 (0.58) <sup>ns</sup>	2.87 (0.52) <sup>ns</sup>	10.45 (1.50) <sup>ns</sup>
	<i>GINI</i>	- 13.30 (- 1.07) <sup>ns</sup>	- 24.67 (- 2.44)**	- 14.25 (- 2-31)**	- 31.91 (- 3.19)***	- 48.87 (- 3.84)***
	R2	0.974	0.936	0.866	0.921	0.953
<i>(B)</i>						
Implied elasticity to:	<i>Income</i>	0.49***	0.17 <sup>ns</sup>	0.24 <sup>ns</sup>	0.16 <sup>ns</sup>	0.40 <sup>ns</sup>
	<i>Gini Index</i>	- 0.09 <sup>ns</sup>	- 0.42**	- 0.49**	- 0.50***	- 0.52***

*t*-stat in parenthesis; \*, \*\*, \*\*\* denote statistical significance at the 10%, 5%, 1% level respectively; ns stays for 'not statistically significant'.

## 6 Attendance at specific cultural events

We now turn to the effect of income distribution on participation in specific cultural activities, distinguishing among cinema, theatre (specifically drama), classical music including opera, and pop music concerts (Table 7). In all cases, a participant is defined as someone who reports attending at least one performance of that type in the past 12 months. We also consider museum attendance, with a participant defined as someone who has visited at least one museum in the past 12 months.

In Part A of Table 7, the results of regressions including all fixed effects (regional and temporal), are provided. It can be observed that the Gini index has a negative and significant effect on theatre, classical music, and pop music attendance, as well as on museum attendance, while the effect on cinema attendance is negative but not statistically significant. Income levels exert a positive influence, which is statistically significant only in the case of cinema. Because the variables differ substantially in scale—as evident from the descriptive statistics already reported in Table 1—the estimated values of the regression coefficients cannot provide meaningful comparative indications. To address this, Part B of Table 7 presents estimated point elasticities, calculated at the mean values of the variables. What matters here is that, apart from the case of cinema attendance—whose elasticity with respect to the Gini coefficient is 0.08, not significantly different from zero—all other elasticities range between 0.42 and 0.52. These are not particularly high values, but they are significantly different from zero. To illustrate, if the Gini index were to increase from 0.28 to 0.29, these estimated elasticity values would imply a decrease in participation ranging between 1.5 and 1.9%, which are, once again, far from negligible.

## 7 Discussion

Several socio-economic mechanisms help explain why higher income inequality depresses cultural participation, as shown in previous sections.

First, when income inequality is high, lower-income groups may face financial barriers to cultural activities, including attending theatres, concerts, museums, and other artistic events. Although digital platforms have expanded access to cultural content, economic disparities still affect technological access, with lower-income households often having more limited access to telematic resources (see, e.g., Bocci & Mingo, 2023).

Second, income inequality is closely tied to disparities in education and lifestyle, which in turn affect cultural participation. In regions with high Gini indices, educational inequalities are often significant, limiting access to high-quality programs—especially in the arts and humanities—for people with low income and education. This educational gap leads to lower engagement in cultural activities. Furthermore, research has shown that socio-economic inequality correlates with poorer health outcomes (e.g., Fancourt & Finn, 2020) and higher incidences of mental and physical illness and criminal behaviour—all factors that can reduce cultural engagement.

Third, in highly unequal societies, cultural capital accumulation—such as familiarity with classical music, fine arts, or literature—tends to be concentrated within the wealthier classes, perpetuating social divides. In such contexts, educational systems often struggle to bridge these gaps, making it harder for disadvantaged young people to develop cultural interests. This issue is particularly relevant today, as income distribution becomes increasingly unequal and social welfare expenditures, particularly in education, continue to shrink.

Fourth, cultural participation reflects broader patterns of economic, social, and political inclusion. In societies with high income concentration, cultural policies and their funding tend to be influenced by the wealthier classes, often prioritizing projects that appeal to elite tastes rather than fostering inclusive cultural engagement.

However, increasing the supply of cultural opportunities does not automatically translate into higher participation or greater social inclusion. When participation reinforces homogeneous networks among individuals sharing similar traits—such as education or social background—it fosters *internal* inclusion, that is, *bonding* social capital. Conversely, when it creates heterogeneous networks, it promotes *external* inclusion, i.e., *bridging* social capital (Otte, 2019); the latter is the only form that expands communities and encourages dialogue across diverse backgrounds. Cultural participation may therefore deepen, rather than reduce, social divides. Music illustrates this risk: genres often define subcultures opposed to one another (Crane, 1992), and musical tastes acquire symbolic value.

The effectiveness of cultural policies depends on social and economic conditions, particularly income and educational equity. In more egalitarian contexts, cultural policies complementing education can democratize access and foster cohesion. Conversely, in highly stratified societies, neglecting audience diversity risks benefiting only those already engaged, deepening inequalities or leading to inefficient spending on commercially viable products. Moreover, income inequality can prevent cultural participation from generating bridging social capital and, thus, social cohesion. For

these reasons, reducing income inequality and expanding access—while limiting culture's role as a status symbol—are essential prerequisites for making cultural participation an effective tool for inclusion.

## 8 Concluding remark

This paper has argued that income distribution plays a crucial role in shaping cultural participation. More precisely, we have shown that, even when controlling for income levels, greater income inequality, as captured by the Gini index, is associated with a significant reduction in in-person cultural participation. This effect proves remarkably robust across multiple specifications, including controls for education, labour market conditions, and digital access. Notably, the negative impact of inequality persists when cultural participation is disaggregated by activity type, and even when inequality is measured by alternative indicators such as the ratio between the highest and the lowest quintile income levels. While our empirical evidence is based on regional data from Italy spanning over a decade, the relationship between income distribution and cultural participation is likely to have broader relevance.

The originality of this study lies in shifting the focus from individual determinants of cultural consumption—widely explored in the literature—to structural factors at the societal level. By demonstrating that income distribution matters (possibly beyond personal income and education), our findings highlight the importance of considering inequality as a key barrier to cultural engagement. By framing cultural participation as a phenomenon shaped by structural inequality rather than solely by individual characteristics, this study contributes to the debate on cultural policy and social inclusion: reducing income inequality and expanding access to cultural opportunities emerge as essential conditions for making cultural participation an effective tool for cohesion.

Future research could extend this approach to other countries and explore the interplay between inequality and new forms of cultural consumption, namely digital cultural consumption, which is increasingly relevant in contemporary landscapes. Moreover, future research may move beyond the use of the Gini index, considering alternative measures of distribution and, more importantly, multidimensional frameworks that incorporate wealth and real opportunities beyond income. These directions would provide a distinctive lens for understanding cultural engagement and for enabling cultural policies to be truly inclusive and to fulfil their potential as a driver of social cohesion.

## Appendix

See Tables 8 and 9.

**Table 8** Variables, sources and acronyms

Acronym	Specific source	Description
<i>CPOH</i>	(A)	% of people (aged 6+) considered active in cultural participation ( $\geq 2$ activities over the year among: cinema ( $\geq 4$ times), theater, museum, monument, pop/classical concert attendance)
<i>CPOH_F</i>	(A)	% of female people (aged 6+) considered active in cultural participation
<i>CPOH_M</i>	(A)	% of male people (aged 6+) considered active in cultural participation
<i>CP_CIN</i>	(A)	% of people (6+) who attended cinema at least once over the year
<i>CP_MONU</i>	(A)	% of people (6+) who visited monuments at least once over the year
<i>CP_MUSCLA</i>	(A)	% of people (6+) who attended classic music concerts at least once over the year
<i>CP_MUSPOP</i>	(A)	% of people (6+) who attended light/popular/jazz concerts at least once over the year
<i>CP_MUSEUM</i>	(A)	% of people (6+) who visited museums or similar institution at least once over the year
<i>CP_THEA</i>	(A)	% of people (6+) who attended theatre at least once over the year
<i>GINI</i>	(B)	Gini index on household income (inclusive figurative housing rents)
<i>LY</i>	(C)	Log of real per capita GDP (chained values with 2015 as the reference year)
<i>NEET</i>	(D)	% of NEET people in the 15–29 aged population
<i>S8020</i>	(E)	The ratio of net income for the 20% richest to the 20% poorest households
<i>SCHSEC</i>	(D)	% of population aged 25–64 with secondary school degree
<i>SCHUNIV</i>	(D)	% of population aged 30–34 with tertiary education level
<i>UNEMPL</i>	(D)	Unemployment rate in the 15–64 aged population
<i>WEB_BB</i>	(A)	% of households with access to the broad-band internet at home
<i>WEB_FAM</i>	(A)	% of households with access to the internet at home

All variables are from ISTAT (the Italian National Institute of Statistics); see <http://esploradati.istat.it>

Specific sources are: (A) *Analisi multiscopo sugli aspetti della vita quotidiana* (“Multipurpose Survey on Household Daily Life”); (B) *Dati territoriali e di coesione sociale* (“Regional account and social cohesion data”); (C) *Conti e aggregate economici territoriali* (“National and territorial economic account”); (D) *Rilevazione sulle forze di lavoro* (“Census on labour force”); also available in *Indicatori del BES* (“Indicators for Equitable and Sustainable Well-being”); (E) *Indagine EU-SILC* (“EU-SILC project”).

Table 9 Regional and time fixed effects

Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
<i>Region</i>																					
1	1.43	1.30	1.32	2.84	3.05	2.26	2.31	1.11	1.48	1.98	1.17	1.67	1.64	2.21	1.46	1.97	-1.33	-0.15	0.33	-0.65	4.15
2	-2.08	-2.49	-3.16	1.77	1.88	-0.19	0.01	-2.08	-1.52	0.02	-2.79	-0.78	-1.59	0.58	-1.95	-0.54	-9.33	-5.47	0.37	-1.46	0.12
3	0.71	1.25	0.46	5.59	5.38	0.49	0.13	0.65	1.16	0.07	0.20	-0.42	1.03	0.36	0.34	-0.99	-4.62	1.65	1.67	-1.23	2.81
4	4.22	4.18	4.43	9.40	1.01	3.93	3.75	3.65	4.57	3.16	1.94	0.90	6.16	5.09	4.59	2.68	-1.30	8.52	4.38	6.06	6.57
5	0.19	-0.13	0.19	2.17	2.70	-0.19	-0.39	-0.69	-0.01	-1.29	-0.12	-1.59	0.40	-1.10	0.45	-1.49	-4.30	-0.90	1.03	-1.20	2.48
6	3.15	3.46	4.02	5.16	5.63	2.94	2.81	2.31	2.88	1.95	3.05	1.83	3.17	1.95	3.88	2.33	-2.32	2.75	1.58	-0.04	5.57
7	-0.75	0.15	-0.11	2.01	1.76	0.37	0.36	-0.99	-0.58	0.11	-0.87	-0.06	-0.70	0.20	-0.78	0.05	-3.11	0.83	0.09	-3.85	1.22
8	0.87	1.85	1.36	5.14	4.85	0.80	0.50	0.46	1.02	0.09	0.69	-0.09	0.86	0.07	1.26	-0.19	-1.99	1.44	0.68	-0.44	1.83
9	1.02	1.57	1.034	3.25	2.89	0.79	0.76	0.41	0.97	0.13	0.78	-0.11	1.19	0.28	1.23	0.03	-0.01	0.31	0.76	-1.68	2.38
10	1.29	2.30	2.91	1.63	1.65	0.96	0.84	0.22	0.76	-0.27	1.45	-0.11	1.15	-0.41	1.51	0.21	1.76	0.62	-0.80	-0.74	1.10
11	-0.80	-0.21	-0.28	-0.08	-0.30	-1.72	-1.57	-1.78	-1.13	-2.59	-1.01	-2.79	-0.61	-2.43	-0.42	-2.26	1.0	0.98	0.27	-0.86	-1.86
12	6.08	8.26	7.24	1.11	9.97	5.09	4.69	6.71	6.78	5.33	6.11	5.42	5.94	5.14	5.12	3.94	4.03	6.86	2.87	1.41	4.27
13	-2.80	-2.51	-1.79	-3.34	-3.02	-2.99	-2.86	-3.16	-3.05	-3.23	1.17	-2.71	1.64	-3.67	-3.05	-3.33	3.90	-2.43	-1.06	1.58	-5.17
14	-4.33	-4.22	-4.07	-7.20	-7.43	-3.22	-2.64	-4.41	-4.87	-2.72	-2.79	-2.07	-1.59	-3.24	-4.21	-1.94	-0.03	-4.31	-1.88	-0.90	-5.63
15	0.36	-0.65	-0.64	-5.03	-5.16	-1.09	-0.83	1.76	0.64	0.60	0.20	1.48	1.03	-0.02	-0.43	0.37	1.07	0.64	-2.11	-0.60	-1.66
16	-2.73	-4.13	-4.15	-8.61	-8.66	-2.47	-2.15	-2.13	-2.97	-1.53	1.94	-0.85	6.16	-1.98	-2.28	-0.46	8.67	-1.52	-1.86	-0.59	-6.09
17	-3.88	-4.65	-3.64	-7.04	-6.36	-2.11	-2.03	-3.51	-4.36	-1.65	-0.12	-1.29	0.40	-1.89	-3.98	-1.12	-0.56	-2.23	-0.49	2.16	-4.91
18	-3.69	-4.66	-4.09	-1.02	-1.01	-3.01	-2.93	-2.53	-3.63	-1.73	3.05	-0.79	3.17	-2.35	-4.44	-1.48	2.57	-3.72	-2.17	1.94	-5.46
19	-0.52	-2.04	-1.75	-6.89	-6.73	-0.42	-0.41	1.35	-0.35	1.50	-0.87	2.32	-0.70	0.96	-0.49	2.09	8.67	0.08	-1.96	-0.90	-2.76
20	2.24	1.37	0.73	-1.65	-2.13	-0.21	-0.35	2.66	2.19	0.07	0.69	0.03	0.86	0.25	2.19	0.13	-0.75	-3.96	-1.68	1.99	1.05
<i>Time</i>																					
2011	5.24	4.08	4.35	4.38	4.96	12.1	14.9	4.96	4.92	1.46	6.26	1.53	4.30	1.40	4.52	13.9	8.88	4.55	2.03	3.95	2.36
2012	2.43	1.67	1.85	1.61	1.97	8.61	10.7	2.36	2.43	1.06	2.61	1.05	2.29	1.08	1.78	9.88	5.11	2.72	-0.26	2.07	1.02
2013	0.12	-0.42	-0.26	-0.75	-0.51	3.92	3.40	0.52	0.33	3.83	0.73	4.32	-0.44	3.38	-0.25	2.87	2.63	1.14	0.57	0.48	-1.13
2014	1.35	0.91	1.16	0.54	0.81	3.71	3.34	1.81	1.65	3.87	1.57	4.02	1.16	3.74	1.01	2.83	4.23	0.86	0.86	1.00	0.94
2015	3.77	3.53	3.67	3.31	3.46	5.05	4.43	4.15	3.97	4.83	3.63	4.67	3.92	4.99	3.20	3.53	5.64	2.51	1.58	2.46	3.44
2016	4.67	4.51	4.62	4.39	4.51	4.79	4.29	4.79	4.87	4.40	4.87	4.61	4.50	4.22	3.94	2.97	8.73	2.89	0.42	3.87	4.20
2017	3.53	3.74	3.60	3.82	3.67	2.72	2.30	3.69	3.72	2.46	3.19	2.77	3.84	2.73	2.63	0.81	4.88	1.91	0.66	1.47	3.79
2018	4.13	4.54	4.35	4.76	4.53	1.91	1.35	4.13	4.22	1.34	3.55	0.87	4.66	1.77	3.23	-0.40	3.78	1.67	0.97	2.77	4.06
2019	4.43	4.99	4.78	5.31	5.03	1.68	1.11	4.21	4.44	0.88	3.67	0.24	5.12	1.46	3.57	-0.86	3.15	2.71	1.76	2.83	4.09

**Table 9** (continued)

Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
2020	0.45	1.15	1.06	0.39	0.04	-3.79	-4.25	0.20	-0.01	-4.53	-0.19	-5.00	1.08	-4.06	-0.63	-6.32	1.98	-1.43	-0.71	-0.07	0.99
2021	-21.9	-21.2	-2.14	-21.0	-2.13	-26.9	-27.3	-21.9	-22.1	-27.0	-2.15	-26.7	-22.3	-2.77	-22.9	-29.3	-34.3	-1.38	-5.96	-13.9	-1.82
2022	-8.24	-8.24	-7.78	-6.75	-7.15	-13.7	-14.4	-8.96	-8.49	-15.1	-8.33	-14.9	-8.19	-1.53	na	na	-14.7	-5.67	-1.92	-6.86	-5.53

The reported estimates of individual and time fixed effects are computed (by the EViews software) as follows. For each unit, the software calculates how its average outcome deviates from the model's predicted value after controlling for the regressors and the time effects. Similarly, the time effects for each period are obtained by assessing how the overall average outcome for that period differs from the predicted value after controlling for the regressors and the individual effects. Regions are: 1. Piemonte, 2. Valdaosta, 3. Lombardia, 4. Trentino A.A., 5. Veneto, 6. Friuli V.G., 7. Liguria, 8. Emilia R., 9. Toscana, 10. Umbria, 11. Marche, 12. Lazio, 13. Abruzzo, 14. Molise, 15. Campania, 16. Puglia, 17. Basilicata, 18. Calabria, 19. Sicilia, 20. Sardegna

**Acknowledgements** This study was funded by the European Union—*NextGenerationEU*, Mission 4, Component 2, in the framework of the *GRINS—Growing Resilient, INclusive and Sustainable* project (GRINS PE00000018—CUP E63C22002120006). The views and opinions expressed are solely those of the authors and do not necessarily reflect those of the European Union; nor can the European Union be held responsible for them. We thank Martin Falk, Antonello Scorcu, Gianpiero Torrini, Roberto Zanola, and the participants at various university seminars and conferences (including the 23rd ACEI Conference in Rotterdam), as well as anonymous referees and the journal’s editor, for their helpful comments and suggestions. The responsibility rests solely with the authors.

## Declarations

**Conflict of interests** The authors have no relevant financial or non-financial interests to disclose.

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