

Measuring the Total Opportunity Costs of Cultural Expenses: An Empirical Exercise for the Spanish Economy

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Abstract

The present analysis uses an extended version of the restricted demand-driven Input-Output multipliers to compute the economy-wide opportunity costs of households' cultural expenses. We then present a novel methodology that allows capturing the direct and indirect costs associated to movements along the Households' expenditure possibilities frontier. To this end, we use a Social Accounting Matrix for the Spanish economy. Apart from computing the total opportunity costs of cultural expenses for the average Spanish Household, we have evaluated these total costs for eight different Households categories classified according to its monthly net income. In our view, the results are useful not only to understand what justifies the different consumption patterns regarding cultural expenses in a specific region, such as Spain, but also across Households' categories. In addition, our findings may serve to increase the degree of efficiency of those policies that seek to increase cultural expenses in an economy because of both the total economy-wide effects and the positive indirect externalities that culture generates.

Key words: E16 (Social Accounting Matrix); E21 - Consumption; Saving; Wealth); D12 (Consumer Economics) ; Z00 (Cultural Economics), Z18 (Cultural Policies).

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1. Introduction

Almost 80 years ago, the article 55 of the United Nations (UN) already recognised the importance of both international cultural cooperation and respect for human rights, regardless of gender, language or religion, in ensuring friendly and healthy relations between nations (United Nations, 1945). Therefore, the article then highlighted the intrinsic value for cultural and linguistic diversity. The provisions of Article 55 were directly put into practice introducing target 4.7 within the Sustainable Development Goals in 2017: “promotion of sustainable development and education for global citizenship and appreciation for cultural diversity”. Reaching this target is essential for improving relationships between regions, promoting peace and fruitful linkages. This target is also key for enhancing governance, respecting human rights, supporting sustainable development and ensuring that “no one is left behind” (United Nations, 2018).

More recently, in the context of Europe Union (EU), the European Commission presented its vision for a vibrant and integrated European cultural landscape with the initiative of the Cultural Compass for Europe. The Culture Compass for Europe consists in a policy framework that seeks to place culture at the core of EU policymaking, launching initiatives around four key directions: upholding European values, empowering artists, leveraging culture for competitiveness and cohesion and championing international cultural relationships (European Commission, 2025).

In times of economic and political instability, culture reinforces democratic values, social cohesions competitiveness and resilience. Promoting cultural activities stimulates innovation and creativity, favours personal enrichment through art and literature, better development of critical thinking and preservation of identity and history, strengthening empathy and peaceful conflict resolution, all of which raise the overall quality of life (UNESCO,2010). The positive externalities derived from cultural capital for societies is well documented and demonstrated in the economic literature (Peacock, 1969, Fullerton, 1992; Sawers, 1993; Trhosby, 1999, 2010; Fujiwara et al., 2019; Wiśniewska et al., 2019; Baldin and Bille, 2023; Bille and Noonan, 2026). The role that cultural capital plays in economic growth and development is also proved (Emilia et al. 2008; Maridal et al. 2013; Ngo et al. 2019).

Apart from favouring social cohesion and political stability i.e. fostering empathy and individuals’ capacity for reflection as well as boosting economic growth and development, the industries linked to culture and creativity have also their direct economic significance. From the point of view of the supply-side, in 2022, cultural enterprises in the EU represented already an average of 6.3 percent of all businesses within the business economy. This share was particularly larger in the Netherlands (11 per cent) and Sweden (10.8 per cent). By contrast, economies such as Bulgaria and Slovakia show the lowest shares (Eurostat, 2024). From the demand side, instead, in 2020 European households’ expenditure on culture represented 2.7 per cent of total consumption. Countries such as France and Germany presented a share above the EU average (3.3 and 3.7 per cent respectively) whereas the shares of Spain and Greece were among the lowest (1.5 per cent and 1.3 per cent respectively) (Eurostat, 2025).

This is the reason why many researchers have tried to quantify the total relevance of cultural and creativity industries in general and cultural events in particular. Since the seminal work of Cwi and Lyall (1977), this total effect (direct, indirect and induced) associated to these sectors has been measured by a wide-range of studies. In assessing the impact the most appropriate methodologies are the applied general equilibrium (AGE) approaches (Throsby, 2004, Miller and Blair, 2022). Examples in the academic literature that used this type of methods and more specifically, the Input-Output (I-O) approach are Gazel and Schwer (1997) that evaluated the impact of the Greatful Dead concerts in Las Vegas, Tohmo (2005) that quantifies the total economic effects of a music festival held in Finland, Herrero et al. (2006) that measures the economic relevance of the case of Salamanca 2002 and Llop and Arauzo-Carod (2012) that approximate the total impact of the Gaudí Center in Reus, Spain. Recent studies such as the one of Pereira et al. (2025) also used the I-O methodology to analyse the overall impact of the entire creative industry in Brazil.

During economic downturns and because this type of consumption is considered as a luxury good, cultural expenditures both private and public (Throsby and Whithers, 1979; Getzner, 2002) are expected to be significantly reduced. It should not be forgotten that all cultural activities were particularly hard hit during the COVID-19 pandemic, a fact that has reignited interest in assessing the economic and social importance of such activities (Anna, 2021). In this regard and giving the economic and socio-political importance that cultural industries and thus cultural expenditure has on economies, it is therefore necessary to conduct research that sheds light on what may be the structural factors i.e. determinants linked to the structure of the economy that cause some countries such as Spain on which we focus our analyses, to have a lower share of cultural activities in both consumption and production.

In terms of both supply and demand figures, the Spanish economy, is lagging behind the rest of European countries. However, the outlook of the Spanish cultural and creativity sector is quite optimistic. Recent studies show that the average share of cultural industries on GDP is remarkable: around 2.4 per cent for this economy (Corrales, 2021). According to the Spanish Ministry of Culture, the relevance of cultural activities in terms of employment in this economy is on the rise: in the third quarter of 2024, cultural employment rose to 755,400 people, representing 3.5 per cent of total employment in the country. This figure reflects an increase of 4.4 per cent compared to 2023, and exceeds the 2019 figure by 6.4 per cent. In contrast, the relevance of cultural activities with regard to household spending remains almost constant, representing a year-on-year decrease of 0.4 from 2022 to 2023. In addition, the average expenditure per household on culture was 585.6 euros, while the average expenditure per person was 235.5 euros. In addition, as for tourism i.e. one of the key sectors of the Spanish economy data from 2023 indicates that 18.4 per cent of all leisure trips taken by residents in Spain were driven by cultural reasons, a figure that rises to 22.6 per cent in the case of international tourists. In total, more than 34 million trips in 2023 were motivated by culture, with an overall expenditure of 32.5 billion euros (Spanish Ministry of Culture, 2025).

Nevertheless, one of the possible reasons that explains that the significance of cultural and creativity industries in Spain is below the EU average relates to the opportunity costs of this type of expenses: A recent European study showed that

countries where expenditure on housing rent and mortgages was higher exhibited lower levels of cultural consumption (Eurostat, 2025). Spain was among these countries. This suggests that, Spanish households devote a lower share of their consumption to cultural commodities because they have to cover other priority housing-related expenses. Therefore, what is the opportunity cost associated with the consumption of cultural goods and services for this economy? In other words, what is the cost associated with diverting resources from the consumption of other goods and services to cultural expenses?. On the one hand, having measures that quantify the opportunity costs of consumption in cultural commodities can help to understand the structural reasons that relate to the economy as a whole why some economies, such as Spain's, consume less in culture and to what extent this is a high cost for the economy as a whole i.e. in terms of its economy-wide impact. On the other hand, this information is valuable for improving the design of those policies that seek to promote and encourage consumption of these activities, especially for the group of households that consume less on culture. This is the reason why, in our analysis the total opportunity costs of cultural expenditure is computed considering eight Households' categories sorted out by his income levels i.e. the monthly net income. This type of classification was selected because consumption in culture is a good with income elasticity greater than one: households with higher incomes consume a greater proportion of cultural goods and services (Frey,1994; Trosby, 2001).

With this aim in mind and, as mentioned earlier, following the methodology proposed by previous works, we have also used an AGE model. However, to approximate the total opportunity costs of households' cultural expenses, we present a novel methodology that adapts one of the most widely-used AGE methods, the classical Social Accounting Matrix methodology (Pyatt and Round, 1977; Parikn and Thorbecke, 1996; Reinert and Roland-Holst, 1997) to this purpose. This novel approach consist in applying the “restricted” version of the SAM demand- expenditure multipliers that makes it possible to capture the total effects of households' movements along the expenditure possibilities frontier (EPF) and thus, the quantification of the economy-wide opportunity costs associated to cultural expenses, in this case.

This paper is organized as follows. Section 2 describes the methodology whereas section 3 present the data set and the major data sources used in this analyses. Section 4 comments the results and Section 5 concludes and offers the main policy recommendations drawn from our empirical exercises.

2. Methodology

2.1. Approximating the Economy-Wide Opportunity Costs of Culture

One of the major criticisms behind I-O models or SAM expenditure multipliers is the fact that, the evaluated exogenous increase or decrease in expenditure levels comes completely “out of the blue”. In this regard, the methodological contributions made by Guerra and Sancho (2011) overcome this limitation taking into account the fact—which is far more realistic than what the standard I-O methodology suggests—that resources are always limited and that any decision on how they are allocated entails an opportunity cost. Hence, these authors consider that any increase in the flows of any of the expenditure accounts is costly so that it should be compensated by a proportional decline in the remaining expenditure accounts i.e. total expenditure remains constant

after introducing the exogenous change in the I-O or SAM system. This is what the authors called the “restricted expenditure I-O multipliers”.

Reflecting on the aforementioned definition of restricted expenditure I-O multipliers, an alternative interpretation would be as follows: since they regard total expenditure as fixed and unchangeable, this type of I-O multipliers capture the economy’s total opportunity cost when economic agents move along their expenditure possibility frontier (EPF). This is an alternative interpretation of the restricted expenditure multipliers that was neither considered nor analysed by the seminal work of Guerra and Sancho (2011). Therefore, as long as prices remain constant, as it is commonly assumed under the standard quantitative version of both the I-O and the SAM approaches for short-term perspective¹, each point of the EPF represents alternative expenditure baskets for which total expenditure is constant. Hence, the restrictive expenditure or demand-side multipliers also evaluates the total (direct and indirect) opportunity costs derived resulting from the substitution of these consumption baskets where the expenditure associated with them remains constant.

With this purpose, two types of quantitative linear AGE models can be used: the I-O method or the SAM approach (Leontief, 1936; Pyatt and Round, 1977; Parikn and Thorbecke, 1996; Reinert and Roland-Holst, 1997). In using the I-O approach, the restricted expenditure multipliers make it possible the quantification of the economy-wide opportunity costs of moving along different points of the EPF controlling, in this case, by the impacts derived from the primary distribution of income i.e. capturing the existing interdependences between industries or sectors and the derived impact on the initial allocation of income along factors of production, capital and labour. In contrast, if the expenditure restraint multipliers are computed employing the SAM method, the economy-wide opportunity costs of those movements along the EPF will also encompass the effects from the secondary distribution of income i.e. impacts from the allocation of income that occurs through taxes and social transfers. Therefore, in our analysis, we opt for this latter approach since it allows capturing the economy-wide opportunity costs of the expenditure of cultural commodities in a more comprehensive manner i.e. more macroeconomic interactions are considered in a SAM approach compared to the I-O method.

In doing so, we depart from the classical demand-driven SAM approach:

$$X = [I - A]^{-1} \cdot H = M \cdot H$$

Where X relates to the total SAM outlays, A refers to the SAM fixed coefficients, M is the SAM multiplier and H is the exogenous vector that, in this case, refers to the Households outlays account. Therefore, any exogenous change in the Households account capture through H’ would lead to endogenous changes in the total SAM outlays X’ that are captured by the following expression:

$$X' = M \cdot H' \tag{2}$$

¹ The assumption that prices remain constant after evaluating any exogenous change in the I-O or SAM demand-driven quantitative approaches is widely accepted in the literature for short-term analysis and it goes along with the short-term Keynesian “flavour” of this type of models (Olsen, 1993).

Hence, since we seek to compute the economy-wide opportunity costs of the expenditure on cultural goods and services i.e. the costs associated with the movement along the EPF, H' is expressed as a partitioned matrix and defined as:

$$H' = \begin{bmatrix} H'^e \\ H^{-e} \end{bmatrix} \quad (3)$$

Where $[H'^e]_i = h'_i{}^e$ refers to the new final demand of households' consumption in each sector $i, j=1, \dots, N$ with N being the total amount of sectors in the economy whereas $[H^{-e}]_m = h_m^{-e}$ relates to the other uses $m=N+1, \dots, M$ of households' income that remain constant in this case i.e. $[H'^{-e}]_m = [H^{-e}]_m$. Hence, the subscript m refers to the other households' income uses included in H' that, under our approach, do not experience any changes. Namely, the households' account i.e. households' savings and households' tax payments, among others.

In order to capture the economy-wide opportunity costs of households' consumption on cultural commodities and thus movements along the EPF associated to an increase in their consumption, we define the vector of changes in the exogenous variables in model (2) as $[\delta']_c^e = \delta_c'^e = h_c'^e$. This vector informs about the evaluated variations in households' expenditure according to the different COICOP (classification of individual consumption according to purpose) categories $c, s=1, \dots, C$. In other words, this vector captures the essence of the “restricted” multipliers since they allow total households' consumption to be constant. Hence, thanks to this “restricted” exogenous changes in households' consumption any variation in the households' expenditure on cultural commodities k $\delta_k'^e$ is compensated with a decline in the expenditure on the other goods and services $\delta_{c \neq k}'^e$ such that total households' expenditure remains constant i.e. $\sum_{c=1}^C h_c^e = \sum_{c=1}^C h_c'^e$.

In our case, we have evaluated a compensated increase in cultural expenses that amounts to 100 million of euros. Notice that this measure is, in a way, symbolic, since due to the fact that standard SAM models are linear, the size of the evaluated shock whether is countervailed or no, do not alter the relative endogenous effects as, for instance, the total opportunity costs of cultural expenses (Miller and Blair, 2022, Chapter 2).

Consequently, the new vector of households' expenditure i.e. evaluated exogenous change according to the COICOP classification is given by:

$$h_c'^e = \delta_c'^e \quad c = k \quad (4)$$

$$h_c'^e = \delta_c'^e = - \sum_{k \neq c}^C \frac{h_k^e}{\sum_{s \neq k} h_s^e} \quad c \neq k$$

Then, using a bridge matrix $[B]_{ic}$ that transforms the COICOP classification into the (Classification of Productive Activities) CPA classification, we obtained the new households' expenditure vector $h_i'^e$:

$$h_i'^e = \sum_{c=1}^C b_{ic} \cdot h_c'^e \quad (5)$$

Therefore, using the new vector of the total SAM outlays obtained through (2), we compute the new equilibrium SAM as follows:

$$X' = A \cdot X' + H' \quad (6)$$

The new SAM captures the changes in total GDP along with the primary, secondary income distribution changes that will occur when moving across the EPF i.e. when consumption baskets are swapped whilst household expenditure remains constant. Consequently, the economy-wide or total opportunity costs (TOC_k) of Households' spending on each cultural commodity k in terms of GDP is defined as:

$$TOC_k = \frac{GDP - GDP'}{\delta_k^e} \quad (7)$$

2.2. Slicing the Economy-Wide Opportunity Costs of Cultural Spending: An approximation according to the income levels of Households.

As advanced in the introduction, the second empirical exercise consists in computing the specific opportunity costs of cultural expenses for each Household category classified, in this case, according to its level of regular monthly household net income. This makes possible to split the “average” total Spanish Households' expenditure in eight categories $r=1, \dots, 8$, according to each household income level.

In doing so, we have “isolated” the specific movements along the EPF for each Household category r evaluating a compensated increase in cultural expenses that amounts, as in the previous empirical exercise, to 100 million of euros. To this end, we have first identified the portion of total aggregate household final consumption that relates to each household type r : $\sum_{c=1}^C h_c^r$. Subsequently, considering the structure of the consumption basket for this type of household r , we have follow the same procedure as in (4) to define exogenous changes (i.e. movements along the EPF). Hence, for each category of household r , the exogenous change evaluated in the final consumption of households is given by:

$$h_c'^{re} = \delta_c'^{re} \quad c = k \quad (8)$$

$$h_c'^{re} = \delta_c'^{re} = - \sum_{k \neq c}^C \frac{h_c^{re}}{\sum_{s \neq k} h_s^{re}} \quad c \neq k$$

Notice that, in this case, the change in the spending basket only applies to this type of household r . In this regard, for the assessment of this total opportunity cost associated to the cultural spending of household r , both the total consumption and the composition of the consumption basket of the remaining households - r remain unchanged $h_i'^{-re} = h_i^{-re}$. Then, plugging this vector $h_c'^{re}$ into the bridge matrix, we get the new expenditure vector $h_i'^{re}$ used to evaluate the opportunity costs of cultural expenses associated with households' category r :

$$H_r' = \begin{bmatrix} h_i'^{-re} + h_i'^{re} \\ h_m'^{-re} \end{bmatrix} \quad (9)$$

Expression (9) informs that while household type r moves along the aggregate EPF changing their consumption basket, the other type of households $-r$ remain in the same “point” or basket of the EPF. Then, we evaluate the new SAM associated to movements of the r category Households across the aggregated EPF as follows:

$$X'_r = A \cdot X'_r + H'_r \quad (10)$$

Following the same procedure as the one described in 2.1, from (10) we compute the economy-wide opportunity costs of cultural expenses of Household r along with its associated indicators.

3. Data

In our analysis, we use a SAM for the Spanish economy for the year 2022. This matrix distinguishes between 63 productive activities in line with the official statistical classification of products by activity (CPA, see the Appendix) and four categories of economic agents: households, companies, the government together with non-profit associations serving households, and the foreign sector. With regard to the categories of income sources, the data set considers two categories. On the one hand, wages and salaries, which are income linked to the labour factor. On the other hand, gross operating surplus and mixed income. The latter relates to the entrepreneurial factor and the ‘mixed’ factor derived from the income of self-employed workers. Finally, it considers four categories of taxes: social security contributions paid by employers, direct taxes paid by households and companies, other net taxes on production, and net taxes on products and imports.

In reconciling the distribution of household final consumption according to the COICOP classification and the original CPA classification present in the original SAM ,we have used an updated version of the bridge matrix for Spain developed by Cazcarro et al. (2022) for the year 2018.

As we previously stated, in computing and analysing the economy-wide opportunity costs of Households’ expenditures on cultural commodities, we distinguish across eight types of Spanish Households classified according to their regular monthly net income. This Households classification is described in Table 1.

Table 1: Households’ Disaggregation of Total Final Consumption (Expenses) based on Monthly net income. Spanish Households’ Budget Survey 2023. Spanish Institute of Statistics.		
Households’ group r	Monthly net Income Bracket	Total Aggregate Expenditure (Millions of Euros)
$r=1$	Up to 499 euros	6,759.7922
$r=2$	From 500 to 999 euros	43,309.2976
$r=3$	From 1,000 to 1,499 euros	91,801.0638
$r=4$	From 1,500 to 1,999 euros	101,565.3070
$r=5$	From 2,000 to 2,499 euros	115,686.4110
$r=6$	From 2,500 to 2,999 euros	132,263.7170
$r=7$	From 3,000 to 4,999 euros	210,460.7870
$r=8$	5,000 or more	72,650.6249
Total Households’		774,497.000

Expenses		
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We choose this Households' classification since, in line with Eurostat, households' income is one of the main determinants of the expenditure in cultural activities (Eurostat, 2025). Additionally, cultural expenses present an income elasticity that is above one. Personal income has regularly been found to be a significant variable in explaining private cultural expenditures (Heilbrun and Gray, 1993; Throsby and Whithers, 1979; O'Hagan, 1996; Oteri and Trimarchi, 1990; Felton, 1992).

Hence, since there are significant differences in households' consumption patterns on these grounds, the derived economy-wide opportunity costs of cultural expenditures could also vary and thus, it is interesting also to compute these costs according to the different households' income level. With this aim in mind, the expenditure patterns according to this households classification along with total final consumption has been obtained from the Households' Budget Survey for the year 2022 (INE, 2023).

Lastly, in our analysis, following the Eurostat classification, the cultural products and services k refer to four major COICOP classifications (Eurostat, 2025). Namely, the *Audio-visual, photographic and information processing equipment* (COICOP 091), the *Other major durables for recreation and culture* (COICOP 092), *Recreational and cultural services* (COICOP 094) and *Newspapers, books and stationery* (COICOP 095). In our empirical exercises for the Spanish economy, we have computed the total economy-wide opportunity costs for all these cultural expenses together and separately too.

4. Results: The Economy-Wide Opportunity Costs of Spanish Households Expenditure on Culture

4.1. Analysis for the Average Representative Spanish Household.

The first empirical exercise consists in applying the methodology described in section 2 to the Spanish SAM for the year 2022 without distinguishing, in this case, across households' categories. Hence, the results presented in this section are based on the average Spanish Households' behaviour. In doing so, we firstly evaluate the economy-wide opportunity costs of total Spanish Households' spending on culture commodities. This implies considering all the aforementioned COICOP classifications linked to cultural consumption i.e. COICOP 091, COICOP 092, COICOP 094 and COICOP 095. In this regard, as stated in section 2, we firstly evaluate an increase of 100 millions euros 2022 in the households' consumption in cultural commodities $k=1,...,K$. This increase is distributed according to the share that each of this cultural commodities has on total cultural expenses. As stated in section 2.1, since the idea is to capture the total costs of moving along the EPF, that exogenous increase is countervailed by a decline in the remaining COICOP categories $c \neq k$ so that total Households' expenditure remained constant. Again, the distribution of this compensated decline in the non-cultural related COICOP categories follows the structure of the initial households' expenditure (see expression 4 in Section 2). Secondly, we repeat the same exercise for each of the COICOP classifications linked to culture $k=1,...,K$. The outcomes of this empirical exercise are depicted in Table 2 and Table 3.

Table_2. Economy-Wide Opportunity Costs of Households' Expenditure in Culture Commodities. Effects on Primary and Secondary Income Indicators. An evaluated-compensated increase of 100 millions of 2022 euros. Spanish SAM. Units: Millions of Euros

	All cultural Related COICOP categories	COICOP 091	COICOP 092	COICOP 094	COICOP 095
GDP	-4.2848	-9.4504	-7.5605	-1.9614	-8.7187
Net labour income	5.2174	2.4142	2.1317	5.3717	7.6408
Labour contributions paid by employers	4.3053	0.3453	0.7699	5.9837	-0.5303
Gross Operating Surplus	-14.2582	-12.2755	-10.9021	-14.2796	-13.7861
Taxes less subsidies on Activities ¹	-0.6994	-1.1127	-0.9323	-0.4691	-0.9677
Taxes less subsidies on Commodities ²	1.1502	1.1782	1.3723	1.4318	-1.0753
Gross Fixed Capital Formation	-2.2703	-2.2703	-2.2228	-5.5454	-4.2144
Foreign Deficit	0.0151	0.4473	0.3538	0.8816	0.1014
Gross National Savings	-4.8970	-1.8230	-1.8670	-5.6640	-4.1130
Direct Taxes ³	-0.5910	-0.3130	-0.2960	-0.6490	-0.5540
Total Tax Revenues ⁽¹⁺²⁺³⁾	-0.14020	-0.2475	0.1440	0.3137	-2.597

In line with the results presented in Table 2, the evaluated economy-wide opportunity costs of the spending on cultural commodities is negative and amounts to -4.2848 millions of euros in terms of gross domestic income (GDP). In other words, for each euro spent on cultural commodities and diverted from other consumption purposes, the Spanish economy loses 0.042 cents (See expression 7 in section 2). Interestingly, this implies that, even though the negative impact on GDP is relatively small, mobilising consumption resources from the non-cultural consumption to the cultural consumption is costly, at least, for the Spanish economy. If we compare this indicator with that obtained for each cultural commodity separately, the economy-wide opportunity costs computed for each cultural commodity is also negative. The Households' spending on *Audio-visual, photographic and information processing equipment* (COICOP 091) shows the highest economy-wide opportunity costs in terms of gross income and amounts to -9.4504 millions of euros per a direct increase of 100 millions of euros in this type of cultural related expenses. This figure is closely followed by the total opportunity costs derived from a 100 millions of euros increment in the Households consumption of *Newspapers, books and stationery* (COICOP 095). On the same grounds, the Households' expenditure on *Recreational and cultural services* occupies (COICOP 094) the last position: per each euro spent on this type of cultural services that is diverted from other consumption commodities, the Spanish economy loses 0.0196 cents.

Regarding the primary distribution of income, in line with our outcomes, the owners of the gross operating surplus are the ones that bear the bulk of the economy-wide opportunity costs whereas the owners of labour income benefit from that switch in consumption flows, the exception being the Households' consumption of *Newspapers, books and stationery* (COICOP 095). This is because, as it can be inferred from Table 3, most of the opportunity costs of the Households' cultural consumption is borne by *Real estate services*. In comparison to other CPA categories, this category is relatively more intensive in gross operating surplus than in terms of labour income i.e. more than 90 per cent of its value-added allocates to gross operating surplus. Lastly, notice that the gross capital formation (investment flows) is negatively affected by this opportunity costs. This result is explained by the decline in gross national savings derived from diverting consumption resources to finance the increase in cultural expenses.

When it comes to analysing the allocation of the economy-wide opportunity costs of culture to some of the macro-magnitudes linked to the secondary distribution of income, notice that the amount of direct taxes collected by the government decreases. They are reduced within a range of -0.6490 to -0.2960 millions of euros. This drop in the government direct tax revenue collection is linked to the corporate tax i.e. households' direct tax payments remained constant in line with our assumptions. This part of the opportunity costs of cultural consumption is explained by the decline in the gross operating surplus income owned by Corporations. Interestingly, in considering the opportunity costs of households' spending on culture in terms of tax revenues (revenues from direct and indirect taxes), in the case of Spain, with the exception of COICOP 92 and COICOP 94, these are negative and, in comparison with other cultural consumption categories, relatively large for the case of *Newspapers, books and stationery* (COICOP 095).

As advanced previously, Table 3 informs about the distributive effects of the total opportunity costs of cultural expenses across CPA categories. For all cultural related COICOP categories, most of the derived costs are bear by the *Real estate services* followed by the Accommodation and food services and Food, beverages and food services. This finding is in line with the conclusions provided by the descriptive analyses of Households' consumption in cultural commodities in the EU carried out by Eurostat (Eurostat, 2025). According to Eurostat findings, there is an inverse relationship between cultural expenses and food and housing expenses. In their analysis, housing expenses include rent or mortgage payments, utilities, maintenance and insurance. In all EU countries where food and housing accounted for more than 50 per cent of the total Households' expenditure, less than 2.5 per cent was spent on culture. The Spanish economy follows this rule. Namely, while the expenditure share on housing represents 52.5 per cent that devoted to culture was around 1.5 percent of total Households' expenditure. In this regard, rent payments are encompassed by Real estate services. Hence, not surprisingly, Real estate services absorb most of the associated opportunity costs of culture: per each euro diverted to cultural commodities there is a decline of -0.126836 in the value-added generated by those services. In addition, due to the strong I-O interdependences between *Real estate services* and *financial services*, the fact that the former is strongly and negatively affected by increasing Households expenses indirectly generates a negative backward effect on the latter. It similarly occurs regarding the *Food, beverages and tobacco products* and the *Products of agriculture, hunting and related services*. This two sectors also share important I-O interdependences.

Lastly, notice that the *Accommodation and Food services* is also a key group of services in supporting the negative effect of diverting resources from the cultural sector. This is explained by the fact that, among the COICOP categories that present the highest shares in total Households' consumption, we find *Catering Services* (COICOP 111). That COICOP category presents strong interdependences with the *Accommodation and Food Services* in the bridge matrix. For the year 2022, that share amounts to 13.411 per cent. The same explanation could be used to justify why *Rental services and Health services* play an important role in financing a large part of the opportunity costs of the cultural sectors. These sectors are strongly linked to those COICOPs that have a significant share in the total Spanish Households' consumption. Summing up, not only are the cultural expenses determined by the Households' consumption patterns but also the direct and indirect opportunity costs associated to these type of consumption expenses.

Hence, these findings allow drawing two key conclusions. Firstly, reducing the amount of money households spend on housing, and specifically on rent and mortgage payments, can significantly increase consumption of cultural goods and services. In this regard, the high housing costs faced by Spanish families, which account for a significant proportion of household expenditure, are not only representing an opportunity cost for industries linked to culture and creativity, but are also leading to a reduction in the positive externalities associated with culture. According to the Spanish statistical office, The second-hand housing market is leading the growth, with an annualised increase of 13.1%, compared with 11.2% for new-build properties (INE, 2026a). Nationwide, housing costs now account for an average of 35 per cent of household income, rising to as much as 60 per cent in saturated markets such as Madrid and Barcelona (INE, 2024). The second conclusion is that any policy that encourages the consumption of cultural goods by slightly altering consumption patterns, i.e. without changing total household expenditure on final goods, will negatively affect the sectors or production activities that play a more prominent role in initial household consumption patterns and in the economy as a whole i.e. food and beverages industries and Real State services. Consequently, the expected impact on the Spanish economy if households' divert spending from non-cultural commodities to cultural ones is negative and around 0.042 cents per euro diverted to cultural spending. Nevertheless, although the impact on capital owners is negative, this is not the case for wages: an increase in cultural consumption boosts labour income.

Table_3. Economy-Wide Opportunity Costs of Households' Expenditures on Cultural commodities. Distributive effects among Products Categories. An evaluated-compensated increase of 100 millions of 2022 euros. Spanish SAM.		
All cultural Related COICOP categories	CPA 2008	Millions of Euros
Real estate services	68	-12.6836
Accommodation and food services	55-56	-9.3279
Food, beverages and tobacco products	10-12	-3.3705
Financial services, except insurance and pension funding	64	-2.3226
Products of agriculture, hunting and related services	01	-1.6823
COICOP 091		
Real estate services	68	-12.7075
Accommodation and food services	55-56	-7.9588

Food, beverages and tobacco products	10-12	-2.3589
Financial services, except insurance and pension funding	64	-1.9735
Human health services	86	-1.6834
COICOP 092		
Real estate services	68	-12.8194
Accommodation and food services	55-56	-8.1330
Food, beverages and tobacco products	10-12	-2.5933
Financial services, except insurance and pension funding	64	-1.8809
Human health services	86	-1.5685
COICOP 094		
Real estate services	68	-11.8837
Accommodation and food services	55-56	-9.2762
Food, beverages and tobacco products	10-12	-3.5405
Wholesale trade services, except of motor vehicles and motorcycles	86	-2.6629
Financial services, except insurance and pension funding	46	-2.3067
COICOP 095		
Real estate services	68	-12.8516
Accommodation and food services	55-56	-8.6025
Food, beverages and tobacco products	10-12	-3.2599
Financial services, except insurance and pension funding	64	-2.2080
Human health services	86	-2.0933

4.2. Analysis for each type of Households classified by Monthly Net Income.

In this subsection we present and comment on the results of the second empirical exercise of this analysis described in section 2.2. Hence, the total opportunity costs of cultural expenses for each household category $r=1,...,8$ classified according to his monthly net income levels (See Table 1 in section 3) are depicted in Table 4. Once again, the results presented in that table refers to the total opportunity costs linked to total cultural expenses after evaluating a compensated increase of 100 millions of 2022 euros in total cultural expenses i.e. $\sum_{k=1}^K \delta_k^e = 100$ millions.

Table_4: Economy-Wide Opportunity Costs of Total Households' Expenditures on Cultural commodities for each Household category. An evaluated-compensated increase of 100 millions of 2022 euros in cultural expenses. Spanish SAM

	TOC _K	GDP	Gross Labour Income*	Gross Operating Surplus
$r=1$	-0.1343	-13.4256	10.2455	-24.0250
$r=2$	-0.1015	-10.1547	12.0733	-22.3366
$r=3$	-0.0918	-9.1780	10.7475	-19.9689
$r=4$	-0.0811	-8.1065	10.6034	-18.5303
$r=5$	-0.0783	-7.8305	9.7099	-17.3709
$r=6$	-0.0634	-6.3445	11.5539	-17.6535
$r=7$	-0.0561	-5.6103	10.3128	-15.9064

$r=8$	-0.0583	-5.8256	9.9729	-15.8411
	Net Indirect Taxes**	Direct Taxes	Gross Fixed Capital Formation	Gross National Savings
$r=1$	0.3540	0.8484	-6.6299	6.2543
$r=2$	0.1087	0.8531	-6.8479	6.6466
$r=3$	0.0434	0.7552	-6.0580	5.8630
$r=4$	-0.1797	0.7129	-5.7487	5.5953
$r=5$	-0.1695	0.6578	-5.2913	5.1252
$r=6$	-0.2448	0.7262	-5.9475	5.9057
$r=7$	-0.0168	0.6552	-5.3737	5.3387
$r=8$	0.0426	0.6386	-5.2278	5.1642
*Gross Labour Income includes Net Labour Income plus Social Contributions paid by Employers.				
**Net Indirect Taxes includes Taxes less subsidies on Activities and Taxes less subsidies on Commodities				

In light of the results shown in the first two columns at the top of Table 4, there is a clear inverse relationship between the total opportunity costs of cultural spending and Households' income levels. This is so even though, as indicated in the existing economic literature, the direct spending on culture is positively correlated with income levels i.e. the higher the Household income, the higher the cultural spending. Spanish Households that earn up to a net monthly income that amounts to 499 euros i.e. $r=1$ devote 1.652 percent of their total consumption expenses to cultural commodities whereas this percentage almost doubles for the case of Households category $r=8$. For Households that earn more than 5,000 euros of net income per month, the share of cultural expenses in total expenses accounts for 3.206 percent. Hence, an increase in income levels might lead not only to an increase in cultural expenses per household but also to a raise in the proportion of income devoted to this type of commodities. This is due to the fact that, as previously stated, most of cultural commodities have a Households' income elasticity larger than one. Therefore, the majority of cultural commodities constitute are luxury consumption.

What is demonstrated in light of the figures shown in Table 4 is that, at least for the case of the Spanish economy, the relationship between households' income level groups and the total opportunity costs of culture is negative: the total cost (direct, indirect, and induced) of cultural expenses is also lower the higher the income level. This implies that, any policy that seeks to alter Households' consumption patterns i.e. increasing the proportion of income devoted to cultural expenses, would be an efficient decision for the case of middle-income and high-income households'. Notice that the associated total opportunity costs for the economy as a whole would be slightly above average values reported in section 2.1 i.e. for $r=8$, the richest Household group, the opportunity costs amount to 0.0583 cents per euro diverted to cultural expenses, a figure above the average indicator, 0.042 cents per euro devoted to cultural consumption. Nevertheless, for low income households, subsidising cultural expenses would be justified since persuading them to increase the proportion of their income allocated to this type of activity would entail higher total opportunity costs: for $r=1$, the poorest Household group, the opportunity costs: the opportunity cost is three times that of the wealthiest group of households. Increasing the proportionally the expenses on cultural commodities for low income households would entail not only high direct costs for this Households' group i.e. income to covert basic needs such as housing should be reduced

but also, as It has been shown here, relatively higher total economy-wide costs for the whole economic system.

Table 5 Economy-Wide Opportunity Costs of Households' Expenditures on Cultural commodities. Distributive effects among Products Categories for each Household category in terms of Value-Added. An evaluated-compensated increase of 100 millions of 2022 euros. Spanish SAM. Units: Millions of Euros 2022.

r=1	CPA_2008	VA costs	r=2	CPA_2008	VA costs
Real estate services	68	-35.1102	Real estate services	68	-28.5488
Food, beverages and tobacco products	10-12	-2.7549	Food, beverages and tobacco products	10-12	-3.4679
Services of households as employers;	97-98	-2.2738	Services of households as employers;	97-98	-2.3075
Constructions and construction works	41-43	-2.2319	Constructions and construction works	41-43	-2.2601
Residential care services; social work services without accommodation	87-88	-1.8439	Accommodation and food services	55-56	-2.2117
r=3	CPA_2008	VA costs	r=4	CPA_2008	VA costs
Real estate services	68	-24.8389	Real estate services	68	-21.8307
Accommodation and food services	55-56	-3.6946	Accommodation and food services	55-56	-4.6864
Food, beverages and tobacco products	10-12	-3.2225	Food, beverages and tobacco products	10-12	-3.2057
Financial services, except insurance and pension funding	64	-2.1994	Constructions and construction works	41-43	-1.9295
Constructions and construction works	41-43	-1.9649	Insurance, reinsurance and pension funding services,	65	-1.8537
r=5	CPA_2008	VA costs	r=6	CPA_2008	VA costs
Real estate services	68	-20.4385	Real estate services	68	-18.7363
Accommodation and food services	55-56	-5.1061	Accommodation and food services	55-56	-5.8793
Food, beverages and tobacco products	10-12	-3.1396	Food, beverages and tobacco products	10-12	-3.3632
Insurance, reinsurance and pension funding services	65	-1.9474	Insurance, reinsurance and pension funding services	65	-1.9471
Constructions and construction works	41-43	-1.7738	Products of agriculture, hunting and related services	01	-1.8748
r=7	CPA_2008	VA costs	r=8	CPA_2008	VA costs
Real estate services	68	-16.9726	Real estate services	68	-17.5339
Accommodation and food services	55-56	-6.5857	Accommodation and food services	55-56	-7.6329
Food, beverages and tobacco products	10-12	-3.0708	Education services	85	-2.9313
Financial services, except	64	-2.4973	Food, beverages and tobacco	10-12	-2.6650

insurance and pension funding			products		
Constructions and construction works	41-43	-1.7206	Insurance, reinsurance and pension funding services	65	-1.9243

The reason that justifies why there is an inverse relationship between, broadly speaking, Households' income levels and total economy-wide opportunity costs of cultural expenses is as follows. If households' categories with higher incomes proportionally spend more on cultural commodities and less on others, their total opportunity cost is lower since proportionally less income is extracted from other non-cultural related goods and services consumed. This means that the reduction in spending across other consumer categories not linked to culture is spread less widely, resulting, in this case, in a lower multiplier effect. This is true even if the countervailed-increase in cultural consumption is the same for all types of households. In other words, due to these differences across households' categories regarding the propensity to consume cultural goods i.e. income elasticities, the distribution of the exogenous impact that reflects movements in the consumption baskets affecting non-cultural expenses is more spread out and less concentrated for low income households than for middle and high income households, a fact that exacerbates the multiplier effects and thus, the opportunity costs of cultural spending.

In Table 4 and Table 5 we can see how the total opportunity costs are widespread in the economy in terms of the primary and secondary income distribution and across production activities. Notice that the same patterns already described in section 4.1 for the case of the average Spanish Households also applied for each Households' category. Lastly, as it can be easily asserted from Table 6, the total opportunity cost for each cultural COICOP category computed for each Household category $r=1,...,8$ follows the same patterns as those commented in section 4.1 too. In addition, the "rule" that the higher the income level the lower the economy-wide opportunity costs of cultural expenses also applies for each cultural COICOP category.

Table 6: Economy-Wide Opportunity Costs of Households' Expenditures on Cultural commodities. GDP losses per evaluated-compensated increase of 100 millions of 2022 euros in each cultural COICOP category. Spanish SAM. Units: euros per euro spent on cultural commodities.

	COICOP 091	COICOP 092	COICOP 094	COICOP 095
r_1	-0.1452	-0.1280	-0.0699	-0.1380
r_2	-0.1301	-0.1128	-0.0553	-0.1232
r_3	-0.1204	-0.1030	-0.0455	-0.1133
r_4	-0.1134	-0.0961	-0.0385	-0.1064
r_5	-0.1090	-0.0919	-0.0340	-0.1019
r_6	-0.1069	-0.0884	-0.0321	-0.0999
r_7	-0.0993	-0.0807	-0.0244	-0.0923
r_8	-0.0991	-0.0805	-0.0241	-0.0922

5. Conclusions and Policy Recommendations

Currently, many national and international institutions emphasise the importance of culture for a region. This is due not only to its economic importance (both from the point of view of supply and demand) but also to the positive externalities it generates in a society, making it more inclusive and tolerant. In this regard, it should not be forgotten that greater social cohesion has a significant impact on both the economic growth and development of an economy. It is for this reason that having methodologies and empirical studies that shed light on why some economies consume more culture than others and what are the direct and indirect opportunity costs associated with the cultural spending can be extremely useful. This is so since, this information could be employed to increase the efficiency of policies aimed at boosting cultural consumption and thus, economies' welfare and development levels.

To this end, we have here proposed a new methodology that allows computing the economy-wide opportunity costs of Households' cultural expenses. This methodology consists in adapting the restricted I-O demand driven multipliers to the SAM approach. This makes possible to compute the total opportunity costs i.e. movements across the Households' EPF in terms of macroeconomic-magnitudes linked to both the primary and secondary distribution of income. The economy-wide opportunity costs are computed not only for the average Household but also for eight different Households categories classified according to its monthly net income.

Our empirical exercise focused on the Spanish economy. In evaluating the economy-wide opportunity costs for the average Spanish Households we can draw the following conclusions. Firstly, the evaluated economy-wide opportunity costs of cultural expenses are negative for all COICOP related categories. Nevertheless, this costs are relatively small: for each euro diverted from the non-cultural expenses to cultural expenses the Spanish economy loses 0.042 euro cents in terms of GDP. The highest total opportunity costs are associated to the consumption of *Audio-visual, photographic and information processing equipment* (COICOP 091) whereas the lowest refer to the consumption of *Recreational and cultural services* (COICOP 094). Regarding the primary distribution of income, the bulk of the opportunity costs are concentrated on the gross operating surplus. In contrast, labour income benefits from diverting resources to cultural expenses. This is so since, the activities that in terms of their added value, finance a large part of these opportunity costs are *Real state services*, activities that are relatively intensive in gross operating surplus. When it comes to comment on the secondary distribution of income effects associated to these opportunity costs, there is a negative effect on the gross national savings that explains the negative impact, though small, on gross fixed capital formation.

These findings are in line with the conclusions drawn by the descriptive statistical analyses recently made by Eurostat: those EU countries and Households' categories that spent a larger amount of income on Housing expenses (that included rental and mortgage) spent a lower amount of income on cultural commodities. In terms of policy recommendation, apart from directly favoring the access to housing (so necessary in the context of the Spanish economy), those policies that reduce the costs of rents and mortgages can indirectly boost consumption of cultural goods and services. In addition, our results inform that in the event that these kind of policies alter Households' consumption patterns, the associated economy-wide costs, at least for the Spanish economy would not be very large.

In the second part of our empirical exercise, we have computed the total opportunity costs of cultural expenses for eight different Households' categories classified according to its monthly net income. We find an inverse relationship between Households' income levels and the total opportunity costs of culture. Hence, another interesting policy recommendation extracted from our novel approach is as follows. Any kind of policy that seeks to promote changes in the consumption patterns that lead to increasing the proportion of income devoted to cultural expenses would be an efficiency decisions for middle-income and high-income households'. In contrast, for poorer households, subsidizing culture would be more appropriate than applying a policy that alter consumption patterns. Future research will try to shed some light on these issues.

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