Analyzing the Impact of Education on Cultural Consumption:
a Case Study Using Multivariate Classification Methods

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Abstract

Studies on cultural capital demonstrate that socialization provided by family, peer group and education are core determinants of cultural consumption. In traditional societies, family socialization were considered the main factor in determining cultural preferences or taste through a process of intergenerational heritage of cultural capital. However, in current informational societies, despite no single factor can be identified, education has become a central predictor of cultural consumption. In this work we analyze the impact of education on preferences for cultural consumption of Spanish population, using a sample from the CIS (barometer 2932). Initially we compare the variations in this relationship at the regional level and, in a second step, we use a model of classification trees to understand the complex association between socioeconomic and sociodemographic determinants of preferences for cultural consumption. Our findings show that the effect of education on cultural consumption can be mediated by economic and social factors. On the other hand, this relationship is context dependent. As an advantage in comparison with previous studies, our model can use a complex combination of predictors to identify the specific groups of population that are more or less susceptible to cultural consumption.

1. Introduction

Studies on cultural capital demonstrate that socialization provided by family, peer group and education are core determinants of cultural consumption [1]-[3]. In traditional societies, family socialization were considered the main factor in determining cultural preferences or taste through a process of intergenerational heritage of cultural capital. Current literature shows specific patterns of differentiation in cultural pursuits that are closely related with preferences for particular types of culture associated with individuals' socioeconomic position [4]. In other words, cultural consumption is positively correlated with socioeconomic status, with variables such as education, income, social class, or occupational status [5]-[10], and also socio-demographic determinants such as age, gender, ethnicity, and urban residence [4,11]. Therefore, at present no single factor can describe the complex patterns of social consumption.

However, despite no single factor can explain cultural consumption in new informational societies, education is still a central predictor of cultural consumption [5,6,12]. The relevance of education to explain differences in cultural consumption has been confirmed in diverse countries such as Spain [13], England [14], or United States of America [15]. Obviously, at present, the significance of education to describe cultural consumption is understood as a complex relationship that might be mediated by other factors. While in traditional approaches studied were mainly focused in the direct study of the simple relationship between educational attainment and cultural consumption, new studies try to design models that are technically more complex but also more realistic. Traditional studies were criticized for over-simplification [16]. In fact, these initial works were based on descriptive statistics or basic correlations that hardly might explain the complex processes behind cultural participation. That is the reason why new studies try to combine a wider variety of socioeconomic and sociodemographic predictors (e.g. gender, age, income, ethnicity, family composition, occupational status, or educational attainment), and also apply more complex and realistic statistical models [9, 10, 13, 14].

In line with recent works, this study analyzes the impact of education on preferences for cultural consumption of Spanish population. Initially, our work aims to compare the variations in this relationship at the regional level. Thus we study the differences in cultural consumption between 17 Autonomous Communities in Spain. In a second step, trying to expand previous studies, we use computational techniques to perform a

multivariate model of classification trees that is aimed at enlightening the complex association between socioeconomic and sociodemographic determinants of preferences for cultural consumption.

2. Method

2.1 Data and sample

In order to analyze the impact of education on preferences for cultural consumption of Spanish population, we use the Barometer 2932 (February, 2012) from the Centro de Investigaciones Sociológicas (CIS). This dataset has a sample size of 2471 units at individual level. The Spanish regions included in the analysis are the following: Andalusia, Aragon, Asturias, Balearic Islands, Basque Country, Canary Islands, Cantabria, Castile-La Mancha, Castile and León, Catalonia, Community of Madrid, Extremadura, Galicia, La Rioja, Murcia, Navarre, and Valencian Community.

2.2 Variables in the model

Taking into account the differences that we may find in cultural activities of people living in different cities in Spain (i.e. some cities have a greater variety of activities, and so cultural participation), we have preferred to choose one general indicator of cultural consumption instead selecting diverse indicators (e.g. attendance to museums, theatre, cinemas, etc.). In this case, our objective is aimed at choosing a measure that makes possible the comparisons between people living in different locations in Spain. Therefore, to obtain a general perspective of cultural consumption and to facilitate interregional comparison, we have selected the "preference for cultural trips during vacation periods" as dependent variable (P18 in the questionnaire). This variable is a binary indicator that compares 1 "the preference for cultural consumption (visit museums, monuments, etc.)" against 0 "other alternative vacations" (beach holidays, rural or nature travels, welfare or health treatments, adventure or sport travels, pilgrimages, etc.).

The independent variable in the model is "educational attainment" (thereafter education). This predictor is an ordinal variable with 4-points scale (where 0 is "no schooling", 1 "primary studies", 2 "secondary studies", and 3 "university degree"). In addition, three variables were included as controls in our models: gender (where 1 "male", 2 "female"), age (18-93 years), and economic circumstances of family (where 1 "Very bad", 2 "Bad", 3 "Fair", 4 "Good", 5 "Very good"). Table 1 shows descriptive statistics for variables in the model.

Table 1. Descriptive statistics for variables in the model

Variable	Obs	Mean	Std. Dev.	Min	Max
Pref. cultural consumption	2471	.325	.468	0	1
Education	2461	1.597	.860	0	3
Gender	2461	1.512	.500	1	2
Age	2471	47.264	17.631	18	93
Economic circumstances	2462	2.899	.864	1	5

2.3 Statistical model

Once the statistical relevance at the bivariate level had been determined between the predictors and the dependent variable, a logistic regression model was carried out to test the effect of education over the preferences for cultural consumption. We have obtained the predicted probabilities for a better understanding of the results. In addition, we have used decision tree learning, also known as classification trees or regression trees, as a predictive model that maps the relationship between variables under analysis. This is a recent predictive modelling approach used in statistics, data mining and machine learning. In the analysis, a decision or classification tree can be used to visually understand the effect of multiple predictors over a specific outcome variable (in our case, the preference for cultural consumption).

3. Results and discussion

Logistic regression models were performed to test the effect of education over the preferences for cultural consumption in 17 Autonomous Community in Spain. Our model corroborates the positive correlation between education and the preferences for cultural consumption in 12 regions: Andalusia, Balearic Islands, Canary Islands, Cantabria, Castile-La Mancha, Castile and León, Catalonia, Galicia, La Rioja, Murcia, Navarre, and Valencian Community (p≤.05). However, statistical differences were not found for Aragon, Asturias, Community of Madrid, and Extremadura. That is, in these regions the relationship between education and the preferences for cultural consumption was not statistically significant.
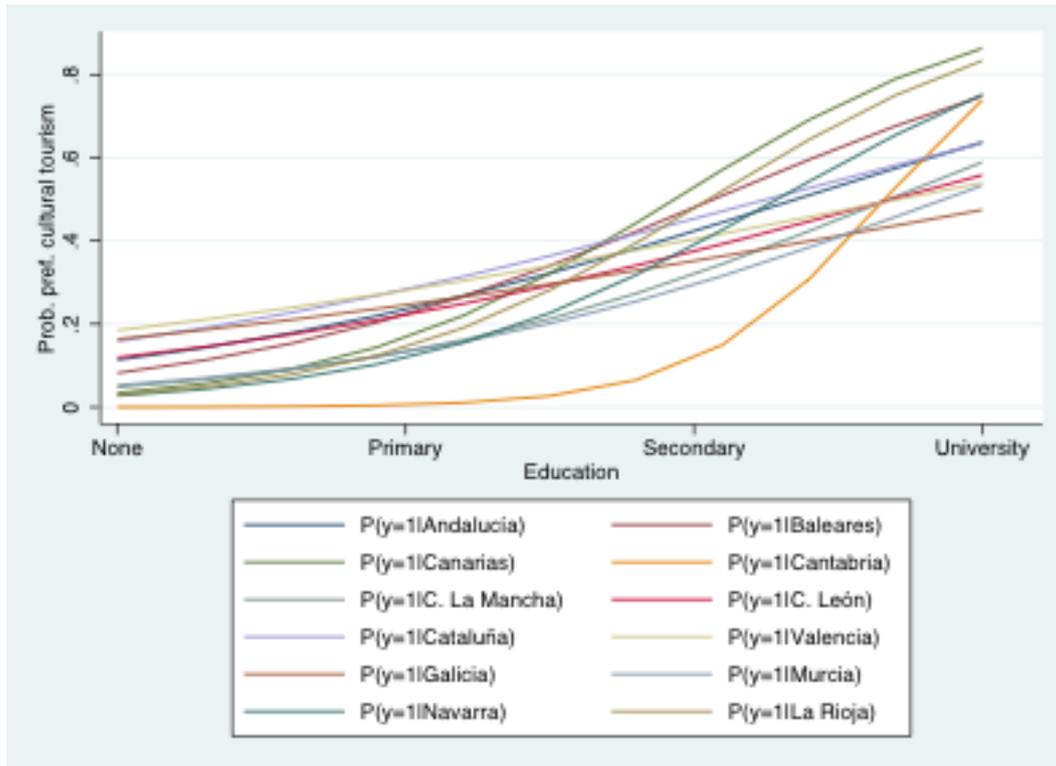

Fig. 1. Predicted probabilities of preference for cultural consumption in Spain

Figure 1 shows the predicted probabilities for the preference for cultural consumption during vacation periods of Spanish population, and how these vary depending on education. In this graph we can clearly observe that educational attainment is positively correlated with the preferences for cultural consumption. In other words, the increasing of education augments the probability of choosing cultural trips against other vacation alternatives, and hence the general cultural consumption. In this case, it is interesting to note the relevance of higher education in the explanation of cultural taste. The effect of education at university level is higher for Canary Islands, while this effect is lower for Galicia. However, despite we can find some differences in the impact of education over cultural preferences, there is a clear pattern that indicates that having university studies increase the probabilities of making cultural trips approximately in a 50 percent. Subsequently it is highly probable that high-educated individuals continue increasing their education along their lives. Of course, this correlation may be related with the persistence of the educational divides in Spanish regions. Obviously, these differences are related with socioeconomic or sociodemographic factors. That is the reason why the relationship between education and the preferences for cultural consumption have been adjusted by variables such as gender, age, and economic circumstances of families. However, in this point, the questions are the following: (1) how can explain the relationship between these variables? and (2) which are the variables that better explains the preferences for cultural consumption?

Figure 2 shows the classification tree that describes the relationship between the four predictors (education, economic circumstances of family, gender and age) and the dependent variable in our model (preference for cultural consumption). In this figure variables have been represented as black circles, while the response for the outcome variables (cultural consumption = Yes / No) are depicted by white rectangles. The final model is able to correctly classify 1728 instances (70%), while 743 are incorrectly classified (30%). For this reason we can say that our model is highly satisfactory.
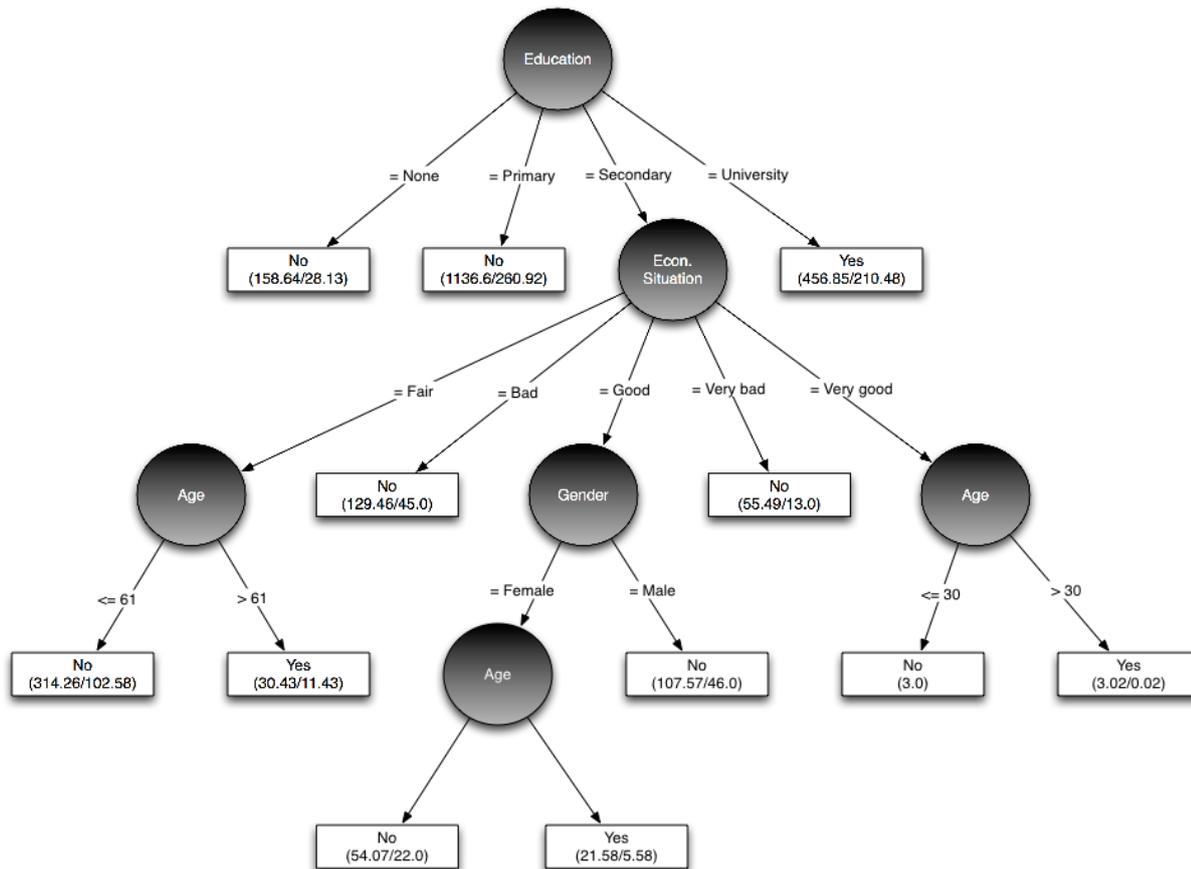

Figure 2. Association between socioeconomic and socio-demographic determinants of preferences for cultural consumption

Figure 2 indicates that education is the main determinant of preferences for cultural consumption. The model still shows the relevance of education to explain cultural consumption, but also how the effect of education may be mediated through other socioeconomic and sociodemographic variables. Our model confirms how it is highly probable that people having university education do cultural trips, while on the contrary people without studies or having primary education will prefer other non-cultural alternatives. On the other hand, it is interesting to observe how the cultural preferences of groups with secondary education are mediated by the economic situation of the families. In this case, if the economic situation is defined as "bad" or "very bad" is more probable that individuals do not prefer cultural consumption, probably because this is an expensive alternative. In case the individual have a good economic situation the cultural preference will depend both on the gender and the age. For example, those who define their economic situation as "fair" are influenced in their final decision by the age (e.g. people older 61 years are more probable to prefer cultural alternatives). Therefore, in this case, the age may be a determinant for mid-income and secondary education individuals. In the opposite, for groups with secondary education and very good economic circumstances we can observe again the relevance of the age. In this case, younger individuals (≤ 30 years) prefer non-cultural alternatives, while groups over 30 years old choose cultural consumption.

4. Conclusion

Our findings show that the effect of education on cultural consumption can be mediated by economic and social factors. On the other hand, this relationship is context dependent. As an advantage in comparison with previous studies, our model can use a complex combination of predictors to identify the specific groups of population that are more or less susceptible to cultural consumption, and also, at methodological level, the possibility to visualize the complex relationship between different predictors at same time. Furthermore, this study demonstrates the utility of data mining techniques for social and human sciences.

References

[1] Bourdieu, Pierre ([1979/]1984) Distinction. A Social Critique of the Judgement of Taste. Routledge: London.

[2] Bourdieu, Pierre (2002) The Forms of Capital. In: Readings in Economic Sociology, Nicole Woolsey Biggart (ed.), 280–291. Blackwell: Oxford. [Original publication (1986): in John G. Richardson (ed.) Handbook of Theory and Research for the Sociology of Education. Greenwood Press: Westport, Conn.]

[3] Alasuutari, Pertti (1997) Kulttuuripääoma summamuuttujan valossa (Sum Variable in Light of Cultural Capital). Sosiologia Vol. 34, Nr.1, 3–14.

[4] Gayo-Cal, M. (2006). Leisure and participation in Britain. Cultural Trends. 15(2): 175-192.

[5] Peterson, R.A. and Kern, R.M. (1996) 'Changing Highbrow Taste: From Snob to Omnivore', American Sociological Review. 61(5): 900–909.

[6] Peterson, R.A. and Simkus, A. (1992) 'How Musical Tastes Mark Occupational Status Groups', in M. Lamont and M. Fournier (eds) Cultivating Differences, pp 152–86. Chicago: University of Chicago Press.

[7] DiMaggio, P. Ostrower, F. (1990). 'Participation in the Arts by Black and White Americans'. Social Forces 68:753- 78.

[8] DiMaggio, P. Useem, M. (1978). Social class and arts consumption'. Theory and Society. 5(2): 141-161.

[9] Tampubolon, G. (2007a). Social Stratification and Cultures Hierarchy among the Omnivores: Evidence from the Arts Council England Surveys. Sociological Review. 58(1):1-25.

[10] Tampubolon, G. (2007b). 'Distinction in Britain, 2001-2004? Unpacking homology and the aesthetics of the popular class.' European Societies. 10(3): 403-428.

[11] Prior, N. (2004). A question of perception: Bourdieu, art and the postmodern. The British Journal of Sociology. 56(1): 123-139.

[12] Sullivan, Oriel – Katz-Gerro, Tally (2004) The Omnivore Thesis Revisited: Voracious Cultural Consumers. A paper presented in the ESA research network interim conference, Copenhagen, Denmark, August 26–28, 2004.

[13] Sintas, J. L. and Alvarez, E. G. (2002). Omnivores Show up Again: The Segmentation of Cultural Consumers in Spanish Social Space. European Sociological Review. 18(3): 353–368.

[14] Chan Tak Wing– Goldthorpe, John H. (2005) 'Social Stratification and Cultural Consumption: Music in England'. Eur Sociol Rev (2007) 23 (1): 1-19.

[15] Bryson, Bethany (1997) What about the univores? Musical dislikes and group-based identity construction among Americans with low levels of education. Poetics, Vol. 27, Issue 3, 141–156.

[16] Bihagen, Erik – Katz-Gerro, Tally (2000) Culture Consumption in Sweden : The Stability of Gender Differences. Poetics, Vol. 27, No. 5–6, 327–349.