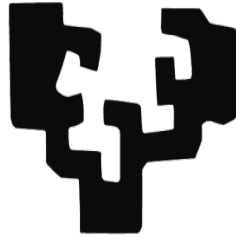


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MASTER IN ECONOMICS



Master in Economics: Empirical Applications and Policies

University of the Basque Country – UPV/EHU
2019/20

EAP Master's Thesis

Determinants for Cultural and Sports
Attendance and Practice in the U.S.A

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Bilbao, July 29th



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ABSTRACT

Cultural and sport events are two of the most common leisure activities nowadays. However, leisure time is limited and there may not be sufficient time to enjoy all activities desired. This research studies the effect of different determinants on people when trying to pick the right activity for them thanks to the information retrieved from the SPPA in the US. This is done following a bivariate probit model, focusing on the marginal effects. Results show us that due to the high estimated tetrachoric correlation values, both activities are going to be complimentary. Apart from that, determinants such as income, age, gender, race and even disabilities have a strong effect when deciding the activity. Individual's education has the strongest effect of them all, making higher educated people the most likely people to choose sport or cultural. This is robust to considering only highbrow or also lowbrow cultural practices. The complementarity also exists between cultural events and practices and between attendance at sports events and practice of sports.

Keywords

SPPA2017, leisure experiences, cultural events and practices, sports events and practices, bivariate probit model, human capital and education, Becker's rational addiction model, demographic determinants, economic determinants.

1- INTRODUCTION

Who could have ever imagined having a year as 2020 with a pandemic that literally stopped the whole world? People have probably learned not to take for granted what they believed was going to be there forever. Situations like Covid-19, disabilities, losing a job... all are unexpected events that might change our cultural and sport practice and attendance preferences among others; things that are important for socializing and especially for our social-wellbeing. I am sure that most of you have missed going to the cinema, visiting a museum or watching any kind of live sporting event.

Even though we might have been consuming these kinds of activities online, we know it has not been the same. It is possible that our life paths have changed forever, and we have not been able to do anything about it. This has derived into exposing an economic and racial segregation that already existed but has been ignored. Social movements such as the controversial (due to all the vandalism acts that have been happening) Black Lives Matter (BLM) are trying to minimize the gap between races in today's societies; among other objectives.

This paper is focusing on analyzing different determinants that affect sport and cultural attendance and participation. These are leisure activities that share important features such as enabling social interaction, contributing to individual welfare and even generating positive externalities (Muñiz, Rodriguez, & Suarez, Sports and cultural habits by gender: An application using count data models, 2014), based on Becker's household production model regarding individual time allocation. Trends in leisure activities have changed over the years (Aguiar & Hurst, 2007). These activities can be considered substitutes if, when the cost of engaging in one of these activities increases, the demand for the other activity increases, *ceteris paribus* (Izquierdo Sanchez, Elliott, & Simmons, 2016). There has been a debate about these leisure activities being demanded jointly or separately, and therefore if they need to be analyzed jointly or separately too. Some researchers believe that both activities may be considered as a social occasion and a chance to spend time and socialize with others, while others believe that sports and cultural activities are time-intensive goods and may compete for individual leisure time (Muñiz, Rodriguez, & Suarez, The Allocation of Time to Sports and Cultural Activities: An Analysis of Individual Decisions, 2011).

Based on sport activities, participation in Europe has reached a stagnation point, and the American government does not want the same to happen in the US. This situation is of concern for health and social policy internationally (Downward P. e., 2014), as health condition is a growing problem due to the increase in the number of obese people in the world. Other variables also affect sport practice such as age or income, but we will talk about them later. On the other side, talking about sport attendance, this is not affected simply by typical economic variables such as ticket prices or income. Quality of the game, uncertainty of the outcome,

etc. do play an important role in order for fans to attend these events (Garcia Villar & Rodriguez Guerrero, 2009).

Cultural activities have taken the importance due since Baumol and Bowen (1966) started to get concerned about the characteristics of cultural consumers. These are separated in two groups; the ones attending highbrow and the ones attending the lowbrow activities during the study. Cultural attendance and practice are also determined by variables such as age, previous participation, education... and the benefits are plenty for social wellbeing.

Therefore, in this paper we are trying to find the most significant determinants when deciding between sport and cultural attendance and practice for the year 2017 in the USA. In order to do this, we will be using data from the SPPA (Survey of Public Participation in the Arts). The SPPA records the different ways that American adults; age 18 and older, engage in arts, also where that engagement takes place and why adults participate in these activities. This survey is run every 5 years. All this is analyzed thanks to the questionnaire and codebook provided by the ICPSR and doable thanks to the help of the NADAC; the National Archive of Data on Arts and Culture, which is a repository that facilitates research on arts and culture by acquiring data and sharing those data with researchers, people in the arts and culture field, general public and many more.

In order to culminate the analysis, we are using a bivariate probit model. The advantage of this model is that it can estimate two dependent variables simultaneously (Greene, *Econometric Analysis*, 2008). The bivariate probit model is a generalization of the logistic regression probit model. In the logistic regression model, it is assumed that for any observation, described by a set of independent explanatory attributes, the value of the dependent (target) variable is always specified. All observations are treated as a single population and their behavior (the probability of the occurrence of the modeled event) is described by one equation with a single set of estimated parameters (Algolytics).

The objective of this paper is therefore focusing on analyzing determinants such as income, education or gender among others in order to see which ones affect attendance and practice to sport and cultural events the most; as previous studies state that these are the most relevant. This previous research make us realize how human capital is more important than income or age for example.

Further analysis from our part will verify these results as well as adding the effects of different disabilities, as these have never been analyzed before.

2- SPORT AND CULTURAL ATTENDANCE AND PRACTICE DEFINED

In this paper we are focusing on the attendance and practice of sport and cultural activities. These might have different definitions, so we need to make them clear throughout this analysis, based on the questionnaire and codebook available on the ICPSR. This codebook and questionnaire use binary covariates that will show us if the individual did or did not complete the action proposed based on the questions made.

Based on sports, the UNESCO defines sports as “all forms of physical activity that contribute to physical fitness, mental well-being and social interaction, such as play, recreation, organized or competitive sport, and indigenous sports and games for the purposes of development.” (UNESCO, 2003) Due to previous studies where the perspective was broader (Humphreys and Ruseski 2007), we are not going to focus much on frequency, intensity or duration as any effort in order to improve the previous mentioned physical activities will already be significant for us.

Sport attendance is measured by the following question; “During the last 12 months, did you go to any amateur or professional sports events?” It is common for people to differ between amateur and professional sport events as attendance to each of them is completely different. Demand, influence... is usually higher for professional sport events and therefore attendance will go in accordance with it. This is one of our dependent variables later on.

Sport practice is measured by the answers to the following three questions from the codebook; “During the last 12 months, did you exercise or participate in any sports activities?”, “During the last 12 months, did you do any hunting or fishing?” and “During the last 12 months, did you participate in any other outdoor activities such as camping, hiking or canoeing?” Approaching sport practice by means of these questions will give us valid results to analyze it and get a clear view of sport participation among the individuals that were asked.

Following up with culture, UNESCO provided another broad definition for it; “Any activity that, for individuals, represents a way of increasing their own cultural

and informational capacity and capital, which helps to define their identity, and/or allows for personal expression.” (UNESCO 2012, p.51) Once again, previous studies have differed among highbrow (high culture) cultural activities, such as attending to museums or theaters and lowbrow (mass or popular culture) cultural activities, such as attending a pop music concert or going to the cinema (Gans 2008).

The same way we did with sports, any short visit to museums or any attendance to live music performances, no matter how short they were, are valid for our observations, as the effort of being there is considered.

A problem might arise with culture in the US, as we might have a possible confounding factor. This is attendance to the cinema, because this activity is the most common one among individuals in the US no matter if they have a high or low social status. This may alter our results, as we will see later when we analyze attendance.

Talking about the first scenario on cultural attendance where we do not include cinema attendance, we are going to consider if the individual, during the last 12 months, attended live jazz performances, live Latin, Spanish, or salsa music performances, live classical music performances, live opera performances, live musical stage plays, live nonmusical stage plays, live ballet performances, live dance (non-ballet) performances, some other live music/dance/theater performances and if they visited art museums or galleries, crafts fair or visual arts festival, outdoor festival that featured performing artists and historic park or monument or tour a building/neighborhood for historic purposes. Each of these questions derives into the creation of different variables with multiple observations in each of them. In order to analyze all these observations properly, we will be using analytic weights as if each observation is a mean computed from a sample of size n , where n is the weight variable.

Taking the cinema attendance into account now, we are using the same variables, but we will also include the one that considers cinema attendance. Data will need to be weighted in this case too.

If we focus on cultural practice now, we are going to consider if the individual did any singing, played any musical instruments, did any dancing or if he or she did any acting during the last 12 months. There will likely be further

activities that can relate to cultural practice in America, but their impact on individual's lifestyles is not as important as the effects of these ones above.

Insert table 1 here

Insert table 2 here

Insert table 3 here

By looking at these percentages from the tables above, we realize that American people usually attend cultural events more often than sport ones, but at the time of practice, sport activities are the ones practiced by more individuals.

3- THEORETICAL FRAMEWORK AND LITERATURE REVIEW

3.1- Theoretical Framework

Sport and cultural attendance and practice are highly time-consuming activities, so in order to analyze them properly, we need to use the theoretical model based on the economic theory of behavior proposed by Stigler and Becker (1977), plus the extension that C. Breuer proposed by incorporating socio-demographic factors (Breuer 2006).

The theory proposed by Stigler and Becker (1977) is a "Rational Addiction" model. By this we mean that in order to produce and enjoy cultural and sport appreciation, individuals need to invest some of their time and specific human capital. Due to this, the higher the investment, the more appreciation they will have.

In the traditional theory, for example, households maximize a utility function of the goods and services bought in the marketplace. On the other side, in the reformulation made by Stigler and Becker (1977), households try to maximize the objects of choice in the utility function called commodities; which are produced by market goods, own individual's time, skills, training and other kinds of human capital and inputs.

Theoretically speaking, a household is seeking to maximize the following statement:

$$U = U(Z_1, \dots, Z_m)$$

and:

$$Z_i = f_i(X_{1i}, \dots, X_{ki}, t_{1i}, \dots, t_{li}, S_1, \dots, S_l, Y_i), i = 1 \dots m$$

where Z_i refers to the commodity objects of choice entering the utility function, f_i refers to the production function for the i th commodity, X_{ji} is the quantity of the j th market good or service used in the production of the i th commodity, t_{ji} is the j th person's own time input, S_j the j th person's human capital and Y_i represents all other inputs. Commodity objects of choice (Z_i) have no market prices since they are not purchased or sold, but they do have shadow prices, which are determined by their costs of production. (Stigler & Becker, 1977).

Individuals can produce leisure commodities in different ways according to their abilities, skills and resources. If we relate to cultural activities, a market good (X_i) could be a ticket for attending a concert, time input (t_i) will be the time spent to arrive at the venue and spent at the concert, and the human capital (S) will be the education the individual needs in order to appreciate the concert more or the education obtained previously in order to play an instrument for example.

On the other side, if we focus on sport activities, a market good (X_i) could be some soccer cleats, time input (t_i) will be the time spent to go buy the cleats, and the human capital (S) in this case could include the physical condition of the individual instead of placing it under other inputs (Y_i).

In case we focus more on the theoretical aspects of the determinants, we could extend our research with the SLOTH model proposed by Cawley (2004). According to this model people allocate their time to the following activities: sleep (S), leisure (including physical activity) (L), occupation (O), transportation (T), and home production (H) (Cawley 2004), but on our research we are not going to focus that much on the theoretical facets.

Leaving the attendance aside, practice in sports and cultural activities is seen as a non-market activity, and therefore it is influenced by monetary and temporal restrictions (Hallman et al. 2016). The same approach has been followed

in prior research in order to talk about different determinants of sports (Downward P. e., 2014) and culture participation (Ateca-Amestoy 2008).

3.2- Literature Review

Previous literature on these topics is abundant on microdata, but when using the Beckerian model, the focus has been analyzing cultural activities more than sport ones. Some studies have analyzed participation by itself in both activities (Hallmann, Muñiz, Breuer, Dallmayer, & Metz, 2017), cultural practice only (Perez-Villadoniga & Suarez-Fernandez, 2019), or sport practice only (Muñiz, Rodriguez, & Suarez, The Allocation of Time to Sports and Cultural Activities: An Analysis of Individual Decisions, 2011) (Downward, Lera-Lopez, & Rasciute, 2011) for example, but attendance and practice on sport and cultural events has never been studied together before and this is what we are going to try to do. Even if the studies mentioned above are looking for different outcomes, they all have something in common; they conclude that human capital is the most relevant determinant on cultural and sport attendance and practice.

Our model is formed by economic determinants that have been separated into three different groups. These groups are ability to purchase, cultural capital stock and others.

The ability to purchase group is formed by determinants such as individual's labor status, household income, hours worked weekly and age. The cultural capital stock group includes determinants related with education; each individual's education, his or her father's and mother's education and previous cultural education for example. On the last broader group formed by the rest of determinants, we will find demographical determinants such as gender, age, health condition, marital status, household composition, number of kids, city size, nationality, social wellbeing, previous participation and post consumption of the activity among others.

Insert table 4 here

Based on Becker's individual decision model, if we consider economic determinants such as time, income and human capital; which are economic variables that appear on the model of time allocation to leisure activities, we can see how individual's participating in sports and culture share common characteristics as both activities tend to be highly time consuming. When an individual is involved in sports or cultural activities, he or she usually derives into the consumption of goods or services. Also, a previous investment or skill might even be necessary in order to take part in the activity (Løyland and Ringstad, 2009). Looking at the income and as we will see later on, the higher an individual's income, the less leisure time that individual is going to have, and the opportunity cost of working time is going to be higher; this derives on time and money being substitutes for each other. The last economic determinant we are considering is human capital; which influences the productivity of the used time and goods. Previous research shows that if human capital increases, individuals can achieve a higher income and therefore become more involved in leisure activities in monetary terms (Hallman et al. 2016).

Learning about these core factors on previous studies, we realize that time is influenced by the hours worked by each individual. The impact of the hours worked per week is ambiguous, which implies that the more hours working, the less leisure time that individual is going to have, but at the same time, a greater opportunity cost will derive into greater earnings (Gray 2003).

Income is an important factor too. As previous studies state, a higher income has a positive impact on practice on cultural and sport activities, as the ability to pay for the good is higher (Gray 2003;Downward et al. 2014). Having a higher income has also been proved to be determinant in the practice of cultural activities, especially on highbrow ones (Suarez-Fernandez et al. 2019), as people with higher income tend to attend these kinds of higher end activities more often than individuals that are struggling economically. On the other side, lower income may act as a barrier to sports practice. Among regular practitioners, income has no influence on the frequency of their sports practice or the influence is negative. This could be explained by the fact that the higher the income, the higher the opportunity cost of time spent on any leisure activity (Downward et al. 2011).

Education is another one of the core determinants from Becker's model. Based on previous findings, education is positively correlated with practice in sports and cultural activities (Hallman et al. 2016). As we are on a rational addiction model, general knowledge acquisition may enhance enjoyment (Gray 2003). Higher education is also an important benchmark, especially for explaining the higher probability to attending cultural activities (Perez-Villadoniga et al. 2019; Suarez-Fernandez et al. 2019). Some other studies show that education is not just important for attendance, but also for practice; as the higher the education, the more practice (Muñiz et al. 2011). A positive relationship between education and sports practice has been reported also (Downward et al. 2011). Nowadays, knowledge about the importance of benefits in sports is getting the attention needed. Due to this, Downward et al. (2014) emphasizes that a higher level of education might be directly connected to a greater awareness of the benefits and importance of sport, as well as exposure to sport in which sport consumption skills are developed. Based on these consumption skills, Muñiz et al. (2014) indicates how important the acquisition of previous skills is for consumers in assessing cultural activities. One of the general assumptions reached by most of the studies mentioned above is that education seems to be more crucial than income in determining cultural and sports practice.

In addition to these determinants identified by Becker's economic household theory, there are some demographic factors as well that represent further restrictions for individuals within a household (Breuer 2006). These are the explanatory variables we are using in our research.

Knowing how many people are in each household could change the effect on either of the activities. It is known that the more children in the household the worse the effect on sport practice, but the better on cultural participation. It seems to be easier to take part in cultural activities with children than in sport ones. Having a child reduces the time available for leisure, and this effect increases as the number of children in the household increases (Hallman et al. 2016). It is not just the effect of having more children, but the effect of the presence of more adults at home also has a negative effect (Muñiz et al. 2011). Dependent adults are as time consuming as children, so that is one of the reasons why the results obtained in previous studies are similar.

Location of the families; the state they live in our case, has an effect on practice and attendance to cultural and sports events. It is not the same living in a big city with a large offer of both activities or living far away from where these events happen. Due to this, individuals living in highly or medium populated areas have higher chances to practice and attend both activities (Suarez-fernandez et al. 2019; Muñiz et al.2011). Some researches go a step further and they focus more on the available infrastructures than the actual size of the cities. Downward (2011) believes that even if a city is small but the infrastructures are appropriate for sport or cultural activity practices, then the effect on practice is positive. Following up with Downward's point, Garcia and Rodriguez-Guerrero (2007) remark that attendance increases during the first year of new facilities and then diminishing at different rates depending on the sport, but do not mention anything about cultural activities.

Focusing more on each individual's demographical factors such as age, marital status, gender and race, studies show that age can have confusing outcomes as some studies show that it will be beneficial for attendance and practice because additional consumption skills are acquired with the passage of time (Hallman et al. 2017;Gray 2011; Perez-Villadoniga et al. 2019; Suarez-Fernandez et al. 2019; Muñiz et al. 2014), while at the same time, others show that age can have a negative impact on sports and cultural practice as when getting older, an evening out can be presumed to entail additional implicit costs (Hallman et al. 2017; Gray 2011; Perez-Villadoniga et al. 2019; Suarez-Fernandez et al. 2019; Muñiz et al. 2011).

Based on marital status, Hallman et al. (2016) state that married individuals practice less sports than single ones. Single males rather pick sports while single women usually choose cultural activities as the way of spending their leisure time. As Muñiz et al. (2014) state, there is a greater negative effect on practice in both cultural and sport activities for females. While men have more "free time", women continue to be responsible for most of the housework and therefore have less leisure time.

Race and gender are somewhat controversial due to racism and sexism in some countries as well as for the already defined stereotypes in some cultures. Based on Hallman's study on Germany, human capital, income and time differ

between nationalities. A negative effect of migration appears on sports practice and a positive one for natives (Hallman et al. 2017). Gender differences appear in previous research too. Stereotypes mentioned above are related to men attending and practicing more sporting events while women are more related with cultural activities. As Downward (2011) states, these differences may be attributed to biological factors, and cultural and social influences, reflecting differences in family responsibilities as well as differences regarding behavior, social expectations and work in a complex relationship. As mentioned before, housework is usually taken care of by women, which makes them have less leisure time and therefore this will derive into a negative effect on practice and attendance. Attendance seems to be a bit ambiguous, as some studies show that women's attendance is higher than men's no matter if it is related with sport or cultural activities, while other studies show the opposite; this could show that women are more committed than men if they all reach the same outcome.

We already mentioned individual's education previously, but parent's education is an important determinant to consider too. Own formal education has the expected effect but only for the very basic level, and we do not find any statistically significant effect of parental education except for very high levels in the part of the father (Ateca-Amestoy 2008). As Gray (2003) stated, previous practice and attendance from parents also has a positive impact on the individual as children and adolescents who perceive parents to be active, report higher sports participation rate; always following the "do as you see" way.

Labor status is related to the income explained in the beginning. In this case, having a full or part time job or the position you work at, have an influence on practice and attendance. Being employed has a negative effect on sports practice. Wicker et al. shows that income is positive towards participation; which is indicative to the income effect. This is related to the number of hours worked per week, as a more important job the individual has, the more hours the individual will likely need to work and therefore the less leisure time he or she will have. Additionally, he or she might be more tired at the end of the day. Students are a part of this too, and as Perez-Villadoniga et al. (2019) found, students to have the highest probability and intensity of attendance. Unemployed individuals have a

lower stadium attendance (Garcia and Rodriguez-Guerrero 2017) but will not have as much of an impact on cultural activities such as attending the cinema.

Social-wellbeing and health status have been studied in previous research too, but in this case we are going to go a step further. We will focus on disabilities. Even though adapted sports have improved a lot over the past few years, it is not easy for disabled people to start practicing sports. Opportunities are not the same, prejudices are against these people, and even if a few stand out as heroes or have motivational histories; for the rest, the beginnings are never easy. Attendance at these events is not high because the marketing derived and information available about these events is not enough. For example, the Paralympic games are a couple of weeks after the Olympic games, but the reachability is not as high. Talking about cultural and sport activities, infrastructures have improved a lot by making buildings more accessible, but still there are many situation where disabled people cannot enjoy as regular people do, due to limitations. These are some of the reasons why practice and attendance of disabled people is still low but has been improving consistently.

Summing up, the existing literature and as seen above, variables such as individual's education, city size and location, infrastructures, parent education and social wellbeing have a positive effect on practice and attendance to cultural and sport events. On the other side, variables such as household size; especially if there are more children and older people, race; if not being white, gender; if being woman, labor status; because having a better position and a higher salary derive into having less leisure time and a higher opportunity cost, and having disabilities; sensorial, mental or motor disabilities for example, have a negative effect on practice and attendance to cultural and sport events. Finally, as our literature review is pretty extensive, and we have dealt with studies from different fields with different purposes, variables such as hours worked per week, age and marital status have an ambiguous effect as some researchers state that their effect is positive while others state the opposite. Our analysis focuses on trying to show the effects of these stated variables for the USA for the year 2017 as accurately as possible.

4- DATA AND METHODOLOGY

4.1-Database

We use data from the SPPA (Survey of Public Participation in the Arts) to carry out this analysis. The SPPA is a supplement of the Current Population Survey (CPS), which is a national survey on labor conditions that is run every 5 years. The SPPA records the different ways that American adults; age 18 and older, engage in arts, also where that engagement takes place and why adults participate in these activities. The survey report also tracks demographic characteristics of those who participate and respondents' perceptions of the availability of the arts in their communities. The report covers both national and state level data as well as selected urban areas (National Endowment for the Arts, 2020). All of this is analyzed thanks to the questionnaire and the codebook provided by the ICPSR.

The ICPSR; established in 1962, is the Inter-University Consortium for Political and Social Research located at the University of Michigan. The ICPSR is an international consortium of more than 700 academic institutions and research organizations, which maintains a data archive of more than 500,000 files of research in the social sciences (National Endowment for the Arts, 2020).

This would not be doable without the NADAC; the National Archive of Data on Arts and Culture. The NADAC is a repository that facilitates research on arts and culture by acquiring data and sharing it with researchers, people in the arts and culture field, general public and many more. It is the largest social science data archive in the world and part of the University of Michigan's Institute for Social Research. It is funded by the National Endowment for the Arts, which is an independent agency of the United States federal government that offers support and funding for projects exhibiting artistic excellence (National Endowment for the Arts, 2020).

Going back to the SPPA, this survey provides us with data on participation patterns for different leisure activities; culture and sports among others, which are the ones we are going to be analyzing. The analysis we are running is using data collected in August 2017 and is referring to information about leisure participation for the previous 12 months. Since 2012, the plan has been to conduct the survey at

5-year intervals. All of this gathered information is about individuals living in the U.S.A that are older than 18 years old. Also, as mentioned before, we will be using the questionnaire and the codebook in order to work with the data and know what variables we need to be using at each moment. These datasets will contain information on attendance and practice for the following artistic activities: jazz, classical music, opera, musicals, theatre plays, ballet, dance, art museums, art crafts, visits to historical parks and monuments, sports and many others (Ateca-Amestoy, 2008).

Insert table 5 here

4.2- Empirical Model

Our dataset contains two binary variables; sport and cultural attendance on one side and sport and cultural practice on the other side. We are using a bivariate probit model, as its advantage is that it can estimate two dependent variables simultaneously (Greene, *Econometric Analysis*, 2008). The bivariate probit model is a generalization of the logistic regression probit model. In the logistic regression model, it is assumed that for any observation, described by a set of independent explanatory attributes, the value of the dependent (target) variable is always specified. All observations are treated as a single population and their behavior (the probability of the occurrence of the modeled event) is described by one equation with a single set of estimated parameters (Algolytics).

The point of estimating a binary probit with the dependent variable Y_1^* and another one with dependent variable Y_2^* , is that they allow a correlation of disturbances (Hallmann, Muñiz, Breuer, Dallmayer, & Metz, 2017). The model will be specified as follows:

$$\begin{aligned}
 Y_1^* &= x_1 \beta + \epsilon_1 & Y_1 &= 1 \text{ if } Y_1^* > 0 & \text{ otherwise } Y_1 &= 0 \\
 Y_2^* &= x_2 \beta + \epsilon_2 & Y_2 &= 1 \text{ if } Y_2^* > 0 & \text{ otherwise } Y_2 &= 0 \\
 & & \epsilon_i &\sim N(0,1) \\
 & & E(\epsilon_1 \epsilon_2) &= \rho
 \end{aligned}$$

The value of rho can go from a -1 to a +1 going through 0. -1 shows a perfect negative correlation, 0 shows no association between both variables and +1 shows a perfect positive correlation. ϵ_i indicates any unsystematic influence that was not captured in x_1 .

By definition, the error terms of a bivariate probit model are normally distributed; as the outcomes are estimated jointly, the coefficients for all explanatory variables can be calculated and the coefficient of the correlation (ρ) between the error terms can be estimated (Cameron & Trivedi, 2010). Also, the joint probabilities of all possible outcome options were predicted using conditional marginal effects. This will derive into observations ($Y_1 = 1, Y_2 = 1$) being described as follows:

$$P(Y_1 = 1, Y_2 = 1) = \int_{-\infty}^{\beta_2 x_2} \int_{-\infty}^{\beta_1 x_1} \varphi_2(z_1, z_2, \rho) dz_1 dz_2$$

Where the φ_2 parameter indicates the density of the bivariate normal distribution, and maximum-likelihood estimators can be applied to determine the bivariate probabilities (Greene, *Econometric Analysis*, 2012).

5- RESULTS

This section starts with the broad discussion of the results derived from the estimation of the bivariate probit model for arts and sports attendance (both coefficients and, more important, marginal effects). Then, there is a brief presentation of the results of the models for cultural (including cinema) and sports attendance. Remember that this is to include “lowbrow” cultural practices in that form of attendance. After this, the results of the models that investigate the relationship between arts attendance and arts practice and sports attendance and sport practice are discussed.

The coefficients estimated in the bivariate probit model, which explain the probability of attendance and practice on sport and cultural activities, are

presented in the appendix. In order to control the contextual influences of the environment in which the individual makes his or her decisions, we will estimate robust variance-covariance matrix by using clusters (which in this case are the 52 USA states). When interpreting the results of the estimation, we are focusing mainly on the marginal effects evaluated at sample means, as bivariate probit coefficients cannot be interpreted and compared between them straight away. Further on, we are going to see and study the 4 different situations proposed before; attending or practicing both activities, attending or practicing cultural activities only, attending or practicing just sport activities or not attending nor practicing any of the activities.

As stated before, the benefit of performing a bivariate probit model is that two dependent variables can be analyzed at the same time while each of them is going to have its own results. We also want to remark that we will use the categories with the highest percentages as base groups, since they are the most relatable groups for our observations.

We are starting with a bivariate probit on cultural and sport attendance. This is our base model and the one we are focusing on the most, in order to compare the results to Hallmann et al. (2017), the most relative paper. We will also be checking for robustness adding attendance to cinema, and finally, we are going to see the complementarity among activities by adding cultural and sport practice. Based on cultural and sport attendance, being poorer than average has a negative effect on cultural attendance, while on the other side, the richer the household is, the better. Similar results were obtained by Gray (2001), Perez-Villadoniga & Suarez-Fernandez (2019) and (Suarez Fernandez, Prieto-Rodriguez, & Perez Villadoniga (2019).

The number of people in the household affects cultural attendance significantly too. As happened in Muñiz et al. (2014) and Hallmann et al. (2017), the more people on the household the lower the attendance to cultural events is. Talking about gender, it is commonly prejudiced that women are more related to cultural activities while men are more into sport activities.

White people are the majority in the US, followed by black people who are the biggest racial minority. Cultural attendance in the US is negatively affected if the individual is not white. Also, if the individual is American, he or she has a

higher chance to attend cultural events This same result was obtained by Hallmann et al. (2017) and Perez-Villadoniga & Suarez-Fernandez (2019), where they stated that being a native American will have a positive effect on attendance while being an immigrant will have a negative one.

Individual's education, parent education and cultural education are also relevant determinants throughout our research. For the individual's education, the higher education level he or she reaches, the better it is for cultural attendance. This could be due to general knowledge acquisition enhancing enjoyment as Gray (2003) stated. About parent's education, we find the same effect in this case; the higher education level the parents reached, the better it is for the child's cultural attendance. Having received cultural education previously has a positive effect on cultural attendance too. Thanks to a higher education, individuals know more about the social-wellbeing cultural activities provide, and that could be one of the reasons why higher education has a positive effect on cultural attendance.

We are also analyzing the effect of disabilities in cultural attendance. Sight and motor disabilities are the ones that affect cultural attendance the most.

In addition, we analyzed sport attendance. We find several similarities among categories compared with cultural attendance; for example, household income has a positive effect as the income gets higher, and negative if the income is below average. Number of individuals also affects sport attendance negatively.

Getting into socio-demographic determinants, as Hallmann et al. (2017) stated, the older the individual the worse for outdoor sport practice. This could be due to biological and physical limitations and, consequently, to changes in the types of activities preferred by the older age groups (Downward, Lera-Lopez, & Rasciute, 2011).

Talking about gender, men in general not only participate more than women in sports, but they also show a higher frequency of participation. These differences may be attributed to biological factors, and cultural and social influences, reflecting differences in family responsibilities as well as differences regarding behavior, social expectations and work in a complex relationship.

Following up with education, we can see the same pattern, as the higher education the better for sport attendance; as it happened with cultural attendance (Downward, Lera-Lopez, & Rasciute, 2011).

The effect of disabilities is similar as with cultural attendance. The effort and abilities needed to attend one of these events are the same or at least similar to the ones in order to attend a cultural event. Due to this, hearing disabilities have a little positive effect, because as said before, thanks to the hearing aid devices individuals with these disabilities will feel almost the same way as people without the disability do. The remaining disabilities might cause further trouble, as in order to attend a sport event sight could be important in order to see what is going on.

As seen and explained above, determinants on these two attendance situations have pretty similar outcomes. This could be due to the estimation of the tetrachoric coefficient of the error terms across equations, ρ , being 0.503 and statistically significant at a 1% level, which shows a pretty strong positive correlation among them. This suggests that both leisure activities are complimentary, in line with previous studies (Muñiz, Rodriguez, & Suarez, 2011).

Insert table 6 here

Focusing on the marginal effects, which indicate how the joint probabilities in each of the four groups (attendance to sport and cultural events, attendance to cultural events only, attendance to sport events only and no attendance to any of the options) changed with a unit change in the independent variables, *ceteris paribus*. Table 7 gives a visual of which variables drive which of the four potential behaviors. The first set represents the individual characteristics that increase the probability of participation in both sports and cultural activities, the second and third sets show cultural and sports activities individually (thus, indicating the factors that increase or reduce the likelihood of some degree of specialization on one alternative or the other), and the fourth set represents changes in the probability of no participation in any activity.

In case the individual wanted to attend both kind of events, cultural education is the determinant with the highest positive probability; 23%, followed by the probability of individual's education when reached college level (17.5%) and when having more than college (21.9%). Living on a household that has an income higher than 100k a year, will increase the probability of attendance by

13.5%. Being younger than 25 will also increase the probability by 12.3%, making it easier for younger people than for older ones to attend both kinds of events. About the hours worked, it seems common in the US to work more than full time; this could be due to having two jobs or working overtime, because if the individual works more than 40 hours a week, the probability of attending both kinds of events will increase by 11%. Focusing on the disabilities, the one that affects attendance at both events the most is sight problems, followed by motor disabilities and disabilities of physical, mental or emotional conditions, with a negative effect on probability of -12.65%, -11.60% and -9.5% respectively. About the major occupations, we have two kinds that have the most effect on attendance to both activities; service occupations and transportation and material moving occupations. They both have negative effects on probability of -7.1% and 8% respectively.

There are some specific traits that determine some inclination to attend only arts events and venues. Having a construction/extraction occupation will have a negative effect of -15.55%. Based on race, being Asian will have a probability of 11.11% in this case. When the individual reaches the education level higher than college, probability increases to 11%. The last remarkable change in situation 10, is working full time or less with a negative effect on probability of -8.93%.

Switching into the 01 situation, where the individual is trying to attend just sport events and not cultural ones, the only significant effect we obtain is the one of being a female, and it has a negative probability of -3.94%.

Finally, we can interpret the coefficients that belong to the 00 group as the barriers to participation in leisure activities and events. If the individual does not attend any cultural or sport events, the determinants that will have a greater affect are the following: Disabilities have the biggest effect on this situation; sight has the highest probability (21.17%) followed by motor (15.84%) and mental disabilities (8.86%). Major occupations such as working in construction/extraction occupations or working in service occupations have probabilities of 18.46% and 12.62% respectively. Being young (25 years or less) has a negative probability of -10.22% followed by the negative probability (-10.39) of being American. Based on the household income, where if the household earns more than 100k, the

probability of not attending any of the events is -12.16%. Finally, the largest negative effect arrives from individual's education, where having some college reports a negative probability of -13.6%, completing college level has a probability of -23% and having more than college level reports a negative probability of -29.8%.

Insert table 7 here

Previously mentioned, attending the cinema is the most common cultural activity in the US. If we include the results of this variable into our research, results might vary as it may cause a bad measure of cultural attendance. We are including this variable in order to check for robustness.

Focusing first on the effect of cultural attendance, household income is still an important determinant in this case. The poorer the household the less probability they have to attend cultural activities; cinema included, than when they are richer. Household size and city size have the same probability effects as cultural attendance without cinema. About the age, while young adults had a negative probability before, they now have a positive one, which might explain that younger people tend to go to the cinema more often than older individuals; who have a negative probability still. Marital status, gender and sex have the same probability effects than without including cinema attendance.

Getting into being Hispanic or not has a different effect in this case. Being non-Hispanic now will have a positive effect. This could be due to Hispanic people not being as fluent in English once they first arrive in the US. As movies are in English, they will not be as likely to go to the cinema. Individual's education and parent education follow the same pattern; the higher education level they achieve, the higher the probability is.

Inside the labor status, the only difference inside the hours worked is the full time/40h per week group, where it changes from having a negative probability to having a positive one. This could be due to people using the cinema as a place to relax, so no matter how many hours they work, they will still make time to attend to the cinema and any other cultural activities (attendance to cinema being the one

with the most weight). Major occupation has the same probability effect with and without cinema attendance.

Getting into the disability topic, having a hearing disability has a positive but little probability. The rest have a negative effect, being sight and physical disabilities with the largest negative probabilities.

Focusing now on how addition of cinema attendance affects sport attendance, all variables have a similar effect in this case. The only variation we notice is the one on parent education when they reach college level. In this case, the effect turns out to be negative while it had a positive probability for cultural attendance without the cinema being included.

Once again, the rho (correlation coefficient) gives us a coefficient of 0.561***, suggesting that both leisure activities are complimentary, confirming previous studies (Muñiz, Rodriguez, & Suarez, *The Allocation of Time to Sports and Cultural Activities: An Analysis of Individual Decisions*, 2011).

Insert table 8 here

Getting into the marginal effects of attending both activities and following the same procedure as when cinema attendance was not included, we obtain the following results from biggest to smallest effect. Once again, individual's education is the determinant with the highest positive probability. Completing college level reports a probability of 17.5% and having more than college education reports a 20.4% probability. Being young (25 years or less) reports a probability of 15.65%. Living in a household that earns more than 100k shows a probability of 14.46%. Having a part time job has a probability of 14.26%, making it easier for workers to attend cultural activities in this case. The last significant probability we find is the one of being American, as this shows a probability of 11.36% while it was previously 9.39% without including cinema attendance.

Getting into situation 10 now, being a female has a 10% increase in probability of attending only cultural events. If the individual has a management, business and financial occupation, the probability of attending cultural events increases by 9.78%. The only negative and significant effect we find in this

situation is the one where the individual works less than 20 hours per week, which is reports a negative probability of -12.52%

Getting into the 01 situation now, if the individual is willing to attend sport events rather than cultural events, marginal effects show us that any of the determinants are either going to have an insignificant coefficient and in case they do, the effect is really low, so it will not be important.

Into the last situation (00) where the individual decides that he or she does not want to attend any of the activities proposed, the results show us the following. Individual's education has the opposite effect as in situation 11. In this case, having less than high school education reports a positive probability of 14.2%. On the other side, as the education level increases, we can see how having some college education, college level completed, or even more than college education are going to report negative probabilities of -13.4%, -20% and -22.9% respectively. Being 25 years old or less reports a negative probability of -16.5% and being American has a probability of -11.43%. Not forgetting about disabilities, individuals with sight, motor or emotional disabilities have a harder time attending these kinds of events as they will not be able to enjoy them as much as a person without disabilities. However, we can see how having a hearing disability is not as much of a big deal; it will even have a negative probability coefficient (not too big but still negative and probabilistically significant) of -0.8%. This could be a good "incentive" or motivation for people with hearing disabilities that might think that attending these kinds of events will be difficult to enjoy due to their physical condition, but as we can see here, this problem is not a deal breaker.

Insert table 9 here

As we can see on the following table, we are adding cultural practice in order to check for complementariness. Remember that practice on these kinds of activities is less common than actual attendance.

Attendance to cultural events follows the same pattern as when we checked it before. Some of the coefficients and p-values are going to change slightly, but the pattern remains the same. Looking at the value of the rho coefficient; 0.581***, we can tell that there is a pretty strong positive correlation among them, which

suggests that attendance and participation on cultural activities is complimentary so that people can attend and take part on them.

Insert table 10 here

As the results from the table above cannot be interpreted, we are going to focus on the marginal effects. Being Asian has a positive probability of 25.42%. Individual's education is important in this case too, as having college level and more than college level education reports positive probabilities of 16.6% and 24.8% respectively. As we are talking about cultural attendance and practice, being a female has a positive probability as happened before; in this case, the probability is 10.18%. The following significant variables have negative effects. Living in a city between 100,000 and 249,999 has a negative coefficient of -11.47%, having a motor disability reports a probability of -16.54% (highest and only significant one among disabilities in this case), and working full time or less has a negative probability of -22.50%. Service occupations, office and administrative support occupations and construction and extraction occupations report respective negative probabilities of -27.2%, 19.28% and 31.19%.

Now, if the individual wants to attend but not practice cultural activities, individual's education is the only positive and significant determinant in this case, reporting 11.9% and 18.2% probabilities respectively. Being on the young (25 years or less) or younger adults (between 25-40 years old) groups reports negative probabilities of -11.6% and -10.6% respectively. Looking at the race, being black reports a negative probability of -10.4%, which shows the racial discrimination towards black people in America even if they do not want to admit it. We also find a remarkable coefficient related to the marital status, and it is reported by widowed individuals. In this case, these individuals have a negative probability of -19.5% when just wanting to attend cultural activities. The largest negative effect, though, is reported by having a sight disability; -20.24%.

Now, if the individual wants to practice cultural activities but not attend them, the only significant and remarkable positive probability is reported by being widowed. In this case, the probability is 10.07%. On the other side, the only

significant and negative probability is reported by the category of having more than college level; -0.9%.

Finally, in the 00 situation, when individuals do not want to attend nor practice cultural activities, individual's education reports negative probabilities of -11.5% when having some college education level, -22.6% when completing college level education and -34% when having more than college education. Major occupations such as the ones related with service occupations and construction and extraction occupations are the ones that have the highest probabilities; 21.9% and 31.8% respectively. Also, having a motor disability has a positive probability of 20% if the individual does not want to do any of the activities. The only negative and significant probability in this case is the one of being Asian with a -19.76%.

Insert table 11 here

The other complementariness check happens when we add sport practice into our model. It looks like in the US; sport practice is more common than cultural practice as we saw in the beginning.

Sport attendance follows a similar pattern as when we analyzed it with cultural attendance. Again, some coefficients are going to change values and the significance level might change too, but the pattern is pretty similar.

On the other side, when focusing on sport participation, determinants such as income, age, gender, race, education or disabilities are interesting to analyze.

If we look at the rho; 0.510***, it tells us that there is a pretty strong correlation among these activities, as most of the people that practice or attend sport events, usually do the opposite too; and therefore, both are complimentary activities.

Insert table 12 here

The table above showed us the coefficients retrieved from the bivariate probit, but as they cannot be interpreted, we are going to check the marginal effects.

The probabilities of an individual that wants to attend and practice sport events are going to tell us the following. Individuals' education is once again the determinant with the highest probabilities. Completing college level for example, reports a probability of 16.1% while having a higher level than that reports a probability of 18%. Being equal or younger than 25 years old, the probability of doing both activities increases by 15.3%. On the other side, if the individual is older than 75, the probability turns out negative; -6.9%. Living in a household that earns more than 100k per year has a positive probability of 13.5%. Talking about disabilities, motor disabilities have the only significant probability; -11.1%.

Jumping to the situation in which the individual attends sport events but does not practice any (situation 10), we are not going to find many statistically significant determinants, and the ones that are actually significant, will have a really small effect on probability.

When the individual does not attend sport events but wants to practice some (situation 01), mental disabilities report a positive probability of 8.2%, while being black reports a negative probability of -10.95%. Looking at the racial problem here, we see the same pattern as we saw with cultural practice, where black people had difficulties or at least showed negative probabilities on practicing these kinds of activities.

The last situation we face (situation 00) is where we are checking the probabilities of the determinants when the individual is neither attending nor participating in sports. The largest positive probability is reported by having a motor disability; 15.7%, followed up by being black, which reports a probability of 12.8%. Next up will be age, where young people (25 years or less) have a negative probability of -14.8% while being older than 75 years reports a positive probability of 12.3%. Looking at the household income, if it earns less than 30K per year, the probability is 9.9%, while if it earns more than 100K, the probability is negative; -12.8%. The last positive probability is reported by being female; 9.3%. Being American reports a negative probability of 16%. Individual's education reports pretty high probabilities among all the categories; -10% when the individual has some college level, -19% when completing college level and -20% when having more than college education.

Insert table 13 here

After checking all the possible situations that we believed were interesting to analyze, we can see how a lot of determinants are not statistically significant, so further research with an improved dataset would be convenient for future studies. Also, with all of the data retrieved and the results obtained, we can have a somewhat clear view of what we are dealing with and how people react based on the different determinants.

6- CONCLUSION and POLICY IMPLICATIONS

6.1 Conclusion

In this paper we have analyzed different variables that determine cultural and sport attendance and practice in the US for the year 2017. The data used has been retrieved from the SPPA (Survey of Public Participation in the Arts) thanks to the questionnaire provided by the ICPSR and using a bivariate probit model because of the advantages of estimating two dependent variables simultaneously (Greene, *Econometric Analysis*, 2008).

As cultural and sport activities are two of the most common leisure activities; the research around the socio-demographic determinants is huge (Hallmann, Muñiz, Breuer, Dallmayer, & Metz, 2017). It has been usual to study them separately, but in this case, we analyzed them all together.

Looking at the different rho values obtained, we can tell how there is a relationship among variables in every case, making them complimentary activities. Also, different categories of the variables will show results that were already obtained on previous studies; as shown in the literature review.

The higher the household income, the better for attending cultural and sport activities, as well as for practicing sports. At the same time, the less money the household has the higher the probability of not attending or participating on sports (Gray, 2001), (Suarez Fernandez, Prieto-Rodriguez, & Perez Villadoniga, 2019).

Age is relevant for attendance and participation too, especially in younger ages. In case the individual is older than 75, the probability of not taking part into sports increases (Hallmann, Muñiz, Breuer, Dallmayer, & Metz, 2017) (Muñiz, Rodriguez, & Suarez, The Allocation of Time to Sports and Cultural Activities: An Analysis of Individual Decisions, 2011) (Perez-Villadoniga & Suarez-Fernandez, 2019).

Being a female has a positive effect on cultural attendance and participation, but no effect at all related to sports (Gray, 2001).

Getting into the racial segregation topic, being black in America has a negative effect on sport practice. Attendance to sport events is also influenced by this variable. On the other side, being Asian has a positive effect on cultural attendance, as it seems that people coming from this culture are prone to attend these kinds of events in America (Perez-Villadoniga & Suarez-Fernandez, 2019).

As we are focusing the research on American soil, native people have a positive probability of attending cultural and sport events. Also, participation in sports has a positive probability. Growing up in this culture is definitely has a positive effect on these kinds of events as they have been around them since they were kids. It is not easy to get used to the American culture depending on which country you come from, and this will be definitely noticed in the society.

Getting into human capital, in particular into individual's education, which we believe is the most relevant determinant of this analysis, we can see how the higher level of education the individual has, the better it is for cultural and sport attendance and practice. Higher education derives into having a further knowledge about the physical and social-wellbeing benefits of sport and cultural events, and that is why the probabilities increase when the level of education increases (Hallmann, Muñiz, Breuer, Dallmayer, & Metz, 2017), (Gray, 2001).

Finally, one of the new additions to this kind of research is the analysis of the effect of disabilities into sport and cultural attendance and practice. Sight, motor and emotional disabilities have negative effects when related to cultural and sport attendance; also, when cinema attendance is involved. This could be due to the infrastructures not being accessible for disabled people. If we take practice into account, only motor disabilities are significant. If these people have difficulties

walking, they will have hard times arriving to venues, and walking around them in order to enjoy the activity.

In summary, we can see how human capital (mostly individual's education in our case) is more important than household income, age or gender for example, when explaining the effects of deciding between cultural or sport activities.

6.2- Policy Implications

From a policy perspective, several things could get done in order to improve individuals' chances to attend and participate in cultural and sport activities. Based from a female perspective, an increase in sport activities will be beneficial as it looks like they are just involved in cultural ones. As Downward et al. (2014) proposed, travel planning, and childcare female-oriented facilities might help them to be more involved into sport activities. On the other side, making cultural activities more attractive for men; as there is a lack of men's attendance and practice in cultural activities, will be definitely beneficial for the gender segregation issue that the population of the United States suffers. Some scholarships for people in need could be a good initiative in order for them to get involved in sport or cultural activities too, as we have seen how income is a relevant determinant. As mentioned before, education is the most important determinant out of them all. Due to this and knowing that the most educated people are the ones that have the higher chances to attend and practice in sport and cultural events, introducing several lectures about the benefits of each of the activities could help people that do not have the resources to reach a higher education level.

As disabilities were the new addition to this research body, in this case, we believe that new policies for this topic will be grateful. Sport practice for disabled people has been improving, even if it does not have the same social influence as it does for abled people. One example could be the Paralympic games, held a couple of weeks after the Olympics. If there is already a lack of help for professional disabled athletes, imagine the disparities for young or amateur athletes. Due to

this, institutions ready to help these athletes should start at the very beginning; from the grassroots sports.

Even if practice problems seem to be under control with technological improvements that help people practice sports, attendance to venues could be improved by facilities that are ready to receive any kind of person; with more elevators installed, having more space between seats, etc.... Technology has been of great help for sport practice, but what happens when people want to learn how to play the piano but do not have the resources. Some propositions for cultural activities are to add cinema sessions with subtitles for people with hearing disabilities. Also, theater plays could be performed with a sign language interpreter. These are little acts that might help disabled people get more involved and possibly feel less isolated from society.

As mentioned throughout our research, cultural and sport activities are some of the most common leisure activities people pursue. The benefits are plenty. Keeping our minds active and sharp as long as possible could be the most beneficial. There are many things in life we cannot control; such as age or gender for example, but that is not going to stop us from fighting for what we want. Disabilities are also something we cannot control but that live with us and that we need to be aware of so that as a society we can try to eliminate disparities between abled and disabled peoples. Seeing people's lives around you fade away due to an illness or a disability, can be really challenging. So, as I tried to show in this study, no matter how badly the odds are against us, a strong will, among other determinants, will help us to overcome anything in this life. Finding ways to increase attendance and participation in sports and cultural events is just the start of pursuing a productive, fulfilling and active life. A healthy body is a healthy mind.

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8.- APPENDIX

Table 1- Cultural and Sports participation rates

	n	Estimated proportion
Sport attendance	6775	34.38
Sport practice	3419	52.34
Cultural attendace	8705	55.39
Cultural attendance with cinema	8209	87.75
Cultural practice	837	42.06

Table 2- Cultural and Sport Attendance joint distribution

%		Sport Attendance		Total
		No	Yes	
Cultural Attendance	No	38.09	6.97	45.05
	Yes	26.25	28.70	54.95
Total		64.33	35.67	100

Table 3- Cultural and Sport Participation joint distribution

%		Sport Participation		Total
		No	Yes	
Cultural Participation	No	35.05	22.89	57.94
	Yes	13.44	28.63	42.06
Total		48.49	51.51	100

Table 4- Summary: Previous Results

Variables		Reference	Comment	Expected impact on cultural attendance	Comment	Expected impact on sports attendance
Ability to purchase						
	Labor Status	Perez-Villadoniga et al. (2019), Suarez-Fernandez et al. (2019)	Employed people have a greater purchase power	+	Focus more on elitist sports(tennis) then popular (soccer)	+
	Household income	Gray (2011), Perez-Villadoniga et al. (2019), Suarez-fernandez et al. (2019)	More income implies more ability to purchase	+	More income implies more ability to purchase	+
	Hours Worked Weekly	Gray (2011)	More hours imply less leisure time	-	More hours imply less leisure time	-
	Age	Hallman et al. (2017), Gray (2011), Perez-Villadoniga et al. (2019), Suarez-Fernandez et al. (2019), Muñiz et al. (2014)	Additional consumption skills are acquired with the passage of time	+	Additional consumption skills are acquired with the passage of time	+
Cultural Capital Stock						
	Education	Hallman et al. (2017), Gray (2003), Perez-Villadoniga et al. (2019), Suarez-Fernandez et al. (2019), Muñiz et al. (2014)	General knowledge acquisition may enhance enjoyment	+	The higher education the more participation	+
	Father educ.		General knowledge acquisition may	+	general knowledge acquisition may	+
	Mother educ.			+		+

Others						
Gender	Hallman et al. (2017), Gray (2011), Perez-Villadoniga et al. (2019), Suarez-Fernandez et al. (2019)	Women attend more live classical performances	Depend	Men more active. Women gretaer responsibility for housework and childcare	Depend	
Age	Hallman et al. (2017), Gray (2011), Perez-Villadoniga et al. (2019), Suarez-Fernandez et al. (2019), Muñiz et al. (2011)	After some age, an evening out can be presumed to entail additional implicit costs	-	U-shape	Depend	
Health Condition	Hallman et al. (2017), Perez-Villadoniga et al. (2019), Suarez-Fernandez et al. (2019), Muñiz et al. (2014)		?	If we take pasive sport participation as Muñiz did, then its going to have a positive impact	+	
Marital Status	Hallman et al. (2017), Perez-Villadoniga et al. (2019), Suarez-Fernandez et al. (2019), Muñiz et al. (2014)	Positive in some, negative in other papers	Depends	Based on Muñiz's article	+	
Household comp.	Hallman et al. (2017), Gray (2011), Muñiz et al. (2014)	The more people at home the less chances to participate	-	The more people at home the less chances to participate	-	
N. of kids	Hallman et al. (2017), Gray (2011), Muñiz et al. (2014)	Women like to take get involved into cultural activities with their kids	+	The more people at home the less chances to participate	-	
Previous participation	Gray (2011)	Learning by doing/ learning by consuming	+	Learning by doing/ learning by consuming	+	
Post consumption	Gray (2011)	learning by doing/ learning by consuming	+	learning by doing/ learning by consuming	+	
City size	Suarez-Fernandez et al. (2019), Muñiz et al. (2011)	The larger the city the higher change to participate	+	The larger the city the higher change to participate	+	
Nationality	Hallman et al. (2017), Perez-Villadoniga et al. (2019)	Positive for native. Negative for immigrant.	Depends	Positive for native. Negative for immigrant	Depends	
Season/Period	Muñiz et al. (2014)	Lower participation during Spring/Summer periods.	Depends	Greater participation during Spring/Summer periods.	Depends	
Social Wellbeing (could suffer multicollinearity with health condition)	Hallman et al. (2017)	the better the individual feels, the more he/she wants to participate	+	the better the individual feels, the more he/she wants to participate	+	

Table 5- Variable Description

Variable Name	Variable Label
Artattend	Formed by the following variables
PEC1Q1A	Attended a live jazz performance in the last 12 months
PEC1Q2A	Attended a live Latin, Spanish, or salsa music performance in the last 12 months
PEC1Q3A	Attended a live classical music performance in the last 12 months
PEC1Q4A	Attended a live opera performance in the last 12 months
PEC1Q5A	Attended a live musical stage play in the last 12 months
PEC1Q6A	Attended a live nonmusical stage play in the last 12 months
PEC1Q7A	Attended a live ballet performance in the last 12 months
PEC1Q8A	Attended a live dance (non-ballet) performance in the last 12 months
PEC1Q9A	Attended some other live music/dance/theater performances in the last 12 months
PEC1Q10A	Visited art museum or gallery last 12 months
PEC1Q11A	Visited a crafts fair or visual arts festival last 12 months
PEC1Q12A	Visited an outdoor festival that featured performing artists last 12 months
PEC1Q13A	Visited a historic park or monument or tour a building/neighborhood for historic
Artcinattend	Formed by the variables above and the following one
PEMDQ1I	Last 12 months, did you go out to the movies or go see any films
PWSSWGT	Final weight
Sportattend	Formed by the following variables
PEMDQ1A	Last 12 months, did you go to any amateur or professional sports events
HEFAMINC	Family income
HRNUMHOU	Total number of persons living in the household (household members)
GEREG	Region
GCFIP	Federal Information Processing Standards (FIPS) State Code
GTCBSASZ	Metropolitan Area Core-based Statistical Area (CBSA) size
PRTAGE	Person's age
PESEX	Sex
PTDTRACE	Race
PEHSPNON	Hispanic or non-Hispanic
PENATVTY	Coutry of birth
PEEDUCA	Highest level of school completed or degree received
Culeduc	Formed by the following variables
PEMEQ1A	In your lifetime, have you ever taken lessons/classes in music
PEMEQ1B	In your lifetime, have you ever taken lessons/classes in photography or filmmaking
PEMEQ1C	In your lifetime, have you ever taken lessons/classes in visual arts
PEMEQ1D	In your lifetime, have you ever taken lessons/classes in acting or theater
PEMEQ1E	In your lifetime, have you ever taken lessons/classes in dance
PEMEQ1G	In your lifetime, have you ever taken lessons/classes in art history
Pareduc	
PEMEQ8	What is the highest degree or level of school your Father completed
PEMEQ9	What is the highest degree or level of school your Mother completed

PEHRUSLT	Hours worked per week
PRMJOC1	Major occupation recode - job 1
PEDISEAR	Hearing Disability
PEDISEYE	Sight disability
PEDISREM	Disability caused by a physical, mental, or emotional condition
PEDISPHY	Motor disability
Cultpractice	Formed by the following variables
PEMBQ1A	Last 12 months, did any singing
PEMBQ1B	Last 12 months, played any musical instruments
PEMBQ1D	Last 12 months, did any dancing
PEMBQ1E	Last 12 months, did any acting
Sportpartic	
PEMDQ1B	Last 12 months, did you exercise or participate in any sport activities
PEMDQ1C	Last 12 months, did you do any hunting or fishing
PEMDQ1D	Last 12 months, did you participate in any other outdoor activities

Table 6- Biprobit Art and Sport Attendance

VARIABLES	Art Attendance	Sport Attendance
faminc = 1, 1-Less than 30,000/Poor	-0.218***	-0.242***
faminc = 2, Base		
faminc = 3, 3-Between 60 and 100K/above Average	0.195**	0.246***
faminc = 4, 4-More than 100k/Rich	0.273***	0.401***
Total number of persons living in the household (household members)	-0.057***	-0.011
Non-metropolitan. Base		
Metropolitan Area Core-based Statistical Area (CBSA) size = 2, 100,000 - 249,999	-0.014	0.045
CBSA size = 3, 250,000 - 499,999	0.041	0.025
CBSA size = 4, 500,000 - 999,999	0.086	0.029
CBSA size = 5, 1,000,000 - 2,499,999	0.057	0.112
CBSA size = 6, 2,500,000 - 4,999,999	0.088	0.246***
CBSA size = 7, 5,000,000+	0.106	-0.021
Age = 1, 1-Young <=25	0.209**	0.276***
Age = 2, 2-Young Adults 25-40	-0.086	0.110
age= 3. Base		
Age = 4, 4-Elder people 60-75	-0.117*	-0.102
Age = 5, 5-Old 75+	-0.219**	-0.170
marstatus = 1, 1-Married	0.021	0.079

marstatus = 2, 2-Widowed	-0.228*	0.023
marstatus = 3, 3-Divorced/Separated	-0.024	0.092
Never Married. Base		
Male. Base		
Sex = 2, Female	0.174***	-0.176***
White. Base		
race = 2, 2-Black	-0.233***	-0.062
race = 3, 3-Asian	0.149	-0.262
race = 4, 4-Other/s	-0.282***	-0.221**
Hispanic. Base		
Hispanic or non-Hispanic = 2,		
Non-Hispanic	-0.022	0.090
American = 1	0.218**	0.332***
Non-American. Base		
education = 1, 1-Less than High School	-0.381***	-0.212**
High school. Base		
education = 3, 3-Some college	0.329***	0.311***
education = 4, 4-College	0.619***	0.463***
education = 5, 5-More than College	0.884***	0.526***
culeduc = 1	0.807*	0.450
culeduc=0. Base		
culeduc = 99	0.320	-0.108
pareduc = 1, 1-Less than HS	0.032	0.028
High school. base		
pareduc = 3, 3-College or some college	0.081	-0.012
pareduc = 4, 4-More than college	0.162	0.305
pareduc = 5, 5-	0.089	-0.038
hworked = 1, 1-20h or less/Part-time	0.011	0.447***
hworked = 2, 2-40h or less/Full-time	-0.112	0.245*
hworked = 3, 3-More than 40h	0.247**	0.338*
Not working. Base		
hworked = 5, 5-Variable schedule	0.134	0.468**
Major occupation recode - job 1 = 1,		
Management, business, and financial		
occupations	-0.152	0.212**
Professional and related occupations.		
Base		
Major occupation recode - job 1 = 3,		
Service occupations	-0.356***	-0.184*
Major occupation recode - job 1 = 4, Sales		
and related occupations	-0.134	0.219*
Major occupation recode - job 1 = 5, Office		
and administrative support occupations	-0.159	-0.019
Major occupation recode - job 1 = 6,		
Farming, fishing, and forestry occupations	-0.440	-0.388

Major occupation recode - job 1 = 7, Construction and extraction occupations	-0.584***	-0.088
Major occupation recode - job 1 = 8, Installation, maintenance, and repair occupations	-0.300*	-0.153
Major occupation recode - job 1 = 9, Production occupations	-0.173	-0.105
Major occupation recode - job 1 = 10, Transportation and material moving occupations	-0.216	-0.276*
Major occupation recode - job 1 = 99, 99	-0.222	0.159
Deaf or hearing difficulties	0.157*	0.091
No deaf. base		
Blind or sight disability	-0.486**	-0.540**
No blind base		
Physical, mental or emotional disability	-0.164	-0.367**
No phys/mental dif. base		
Walking or climbing stairs disability	-0.378***	-0.383***
No motor. base		
Observations	3,420	3,420
Rho value		0.503***
*** p<0.01, ** p<0.05, * p<0.1		

Table 7- Marginal Effects of Art and Sport Attendance

VARIABLES	Arts and Sports	Only art attendance	Only sport attendance	No attendance
faminc = 1, 1-Less than 30,000/Poor	-0.070***	-0.0170	-0.008	.095***
faminc = 2, Base				
faminc = 3, 3-Between 60 and 100K/above Average	.083***	-0.007	.007	-.083***
faminc = 4, 4-More than 100k/Rich	.135***	-0.029	.016*	-.121***
Total number of persons living in the household (household members)	-0.009	-0.014**	.005 *	.018**
Non-metropolitan. Base				
Metropolitan Area Core-based Statistical Area (CBSA) size = 2, 100,000 - 249,999	.009	-0.015	.007	-.001
CBSA size = 3, 250,000 - 499,999	.010	.006	-.001	-.0150
CBSA size = 4, 500,000 - 999,999	.015	.018	-.005	-.029

CBSA size = 5, 1,000,000 - 2,499,999	.033	-.011	.007	-.030
CBSA size = 6, 2,500,000 - 4,999,999	.070***	-.035	.021**	-.056*
CBSA size = 7, 5,000,000+	.005	.036	-.012	-.029
Age = 1, 1-Young <=25	.096***	-.017	.007	-.086**
Age = 2, 2-Young Adults 25-40	.018	-.051**	.023**	.011
Age=3. Base				
Age = 4, 4-Elder people 60-75	-.036	-.011	.000	.046*
Age = 5, 5-Old 75+	-.060***	-.027	.002	.085**
marstatus = 1, 1-Married	.022	-.013	.007	-.015
marstatus = 2, 2-Widowed	-.019	-.072**	.027*	.064
marstatus = 3, 3-Divorced/Separated	.020	-.029	.013	-.004
Never Married. Base				
Male. Base				
Sex = 2, Female	-.024	.093***	-.039***	-.029*
White. Base				
race = 2, 2-Black	-.040*	.093**	.018	.075**
race = 3, 3-Asian	-.054	.111 **	-.035**	-.022
race = 4, 4-Other/s	-.077**	-.035	.002	.110**
Hispanic. Base				
Hispanic or non-Hispanic = 2, Non-Hispanic	.0196	-.0282	.0121	-.004
American = 1	.094***	-.008	.017	-.103***
Non-American. Base				
education = 1, 1-Less than High School	-.066***	-.077***	.005	.139***
High school. Base				
education = 3, 3-Some college	.102***	.029	.005	-.136***
education = 4, 4-College	.175***	.065***	-.010	-.230***
education = 5, 5-More than College	.219***	.110***	-.030**	-.298***
culeduc = 1	.230*	.076	-.053	-.252*
culeduc=0. Base				
culeduc = 99	.017	.110	-.056	-.071
pareduc = 1, 1-Less than HS	.010	.003	-.000	-.013
High school. base				
pareduc = 3, 3-College or some college	.006	.026	-.011	-.022
pareduc = 4, 4-More than college	.096	-.032	.021	-.085
pareduc = 5, 5-	.001	.034	-.014	-.021
hwworked = 1, 1-20h or less/Part-time	.110**	-.106*	.053 *	-.057
hwworked = 2, 2-40h or less/Full-time	.045	-.090**	.040**	.005

hworked = 3, 3-More than 40h Not working. Base	.110**	-.016	.010	-.104**
hworked = 5, 5-Variable schedule	.132**	-.081	.038	-.090*
Major occupation recode - job 1 = 1, Management, business, and financial occupations	.040	-.098**	.038**	.021
Professional and related occupations. Base				
Major occupation recode - job 1 = 3, Service occupations	-.073**	-.067**	.012	.127***
Major occupation recode - job 1 = 4, Sales and related occupations	.044	-.095**	.036**	.015
Major occupation recode - job 1 = 5, Office and administrative support occupations	-.018	-.043	.012	.049
Major occupation recode - job 1 = 6, Farming, fishing, and forestry occupations	-.018	-.055	-.002	.175
Major occupation recode - job 1 = 7, Construction and extraction occupations	-.076*	-.153***	.046**	.183***
Major occupation recode - job 1 = 8, Installation, maintenance, and repair occupations	-.061	-.055	.010	.106 *
Major occupation recode - job 1 = 9, Production occupations	-.040	-.026	.005	.062
Major occupation recode - job 1 = 10, Transportation and material moving occupations	-.082*	-.002	-.007	.090
Major occupation recode - job 1 = 99, 99	.019	-.104	.039**	.046
Deaf or hearing difficulties No deaf. base	.039	.022	-.006	-.055*
Blind or sight disability No blind base	-.146***	-.046	-.019	.211**
Physical, mental or emotional disability No phys/mental dif. base	-.095***	.030	-.024*	.089**
Walking or climbing stairs disability No motor. base	-.117***	-.033	-.009	.159***

*** p<0.01, ** p<0.05, * p<0.1

Table 8- Biprobit Cultural Attendance with Cinema and Sport attendance

VARIABLES	Cultural Attendance with Cinema	Sport Attendance
faminc = 1, 1-Less than 30,000/Poor	-0.291***	-0.238***
faminc = 2, Base		
faminc = 3, 3-Between 60 and 100K/above Average	0.204***	0.242***
faminc = 4, 4-More than 100k/Rich	0.215***	0.405***
Total number of persons living in the household (household members)	-0.06***	-0.01
Non-metropolitan. Base		
Metropolitan Area Core-based Statistical Area (CBSA) size = 2, 100,000 - 249,999	-0.06	0.051
CBSA size = 3, 250,000 - 499,999	0.203*	0.02
CBSA size = 4, 500,000 - 999,999	0.164*	0.03
CBSA size = 5, 1,000,000 - 2,499,999	0.08	0.102
CBSA size = 6, 2,500,000 - 4,999,999	0.201**	0.254***
CBSA size = 7, 5,000,000+	0.188**	-0.02
Age = 1, 1-Young <=25	0.697***	0.289***
Age = 2, 2-Young Adults 25-40	0.190**	0.107
age= 3. Base		
Age = 4, 4-Elder people 60-75	-0.157**	-0.105
Age = 5, 5-Old 75+	-0.221**	-0.159
marstatus = 1, 1-Married	0.02	0.08
marstatus = 2, 2-Widowed	-0.265**	0.02
marstatus = 3, 3-Divorced/Separated	-0.047	0.095
Never Married. Base		
Male. Base		
Sex = 2, Female	0.162***	-0.183***
White. Base		
race = 2, 2-Black	-0.204**	-0.069
race = 3, 3-Asian	0.176	-0.254
race = 4, 4-Other/s	-0.033	-0.215*
Hispanic. Base		
Hispanic or non-Hispanic = 2, Non- Hispanic	0.00374	0.086
American = 1	0.327***	0.344***
Non-American. Base		
education = 1, 1-Less than High School	-0.385***	-0.187*
High school. Base		
education = 3, 3-Some college	0.406***	0.301***
education = 4, 4-College	0.665***	0.461***

education = 5, 5-More than College	0.818***	0.524***
culeduc = 1	0.803	0.459
culeduc=0. Base		
culeduc = 99	0.166	-0.086
pareduc = 1, 1-Less than HS	-0.0503	0.019
High school. base		
pareduc = 3, 3-College or some college	0.192	-0.034
pareduc = 4, 4-More than college	0.638	0.309
pareduc = 5, 5-	0.042	-0.046
hworked = 1, 1-20h or less/Part-time	0.0468	0.453***
hworked = 2, 2-40h or less/Full-time	0.004	0.254*
hworked = 3, 3-More than 40h	0.396**	0.346*
Not working. Base		
hworked = 5, 5-Variable schedule	0.281	0.461**
Major occupation recode - job 1 = 1, Management, business, and financial oc. occupations	-0.117	0.211**
Professional and related occupations. Base		
Major occupation recode - job 1 = 3, Service occupations	-0.235**	-0.182*
Major occupation recode - job 1 = 4, Sales and related occupations	-0.100	0.223*
Major occupation recode - job 1 = 5, Office and administrative support occupations	-0.0488	-0.016
Major occupation recode - job 1 = 6, Farming, fishing, and forestry occupations	-0.763**	-0.409
Major occupation recode - job 1 = 7, Construction and extraction occupations	-0.035	-0.090
Major occupation recode - job 1 = 8, Installation, maintenance, and repair occupations	-0.079	-0.176
Major occupation recode - job 1 = 9, Production occupations	-0.071	-0.102
Major occupation recode - job 1 = 10, Transportation and material moving occupations	-0.153	-0.262*
Major occupation recode - job 1 = 99, 99	-0.118	0.167
Deaf or hearing difficulties	0.018	0.067
No deaf. base		
Blind or sight disability	-0.415**	-0.539**
No blind base		
Physical, mental or emotional disability	-0.183*	-0.335**

No phys/mental dif. base		
Walking or climbing stairs disability	-0.363***	-0.383***
No motor. base		
Observations	3,409	3,409
Rho value	0.560***	

*** p<0.01, ** p<0.05, * p<0.1

Table 9- Marginal Effects of Art Attendance with Cinema and Sport attendance

VARIABLES	Arts and Sports	Only art attendance with cinema	Only sports	No attendance
faminc = 1, 1-Less than 30,000/Poor	-.0786***	-.023	.002	.100***
faminc = 2, Base				
faminc = 3, 3-Between 60 and 100K/above Average	.088***	-.027	.001	-.062***
faminc = 4, 4-More than 100k/Rich	.144***	-.080***	.008*	-.072***
Total number of persons living in the household (household members)	-.010	-.013*	.003**	.016**
Non-metropolitan. Base				
Metropolitan Area Core-based Statistical Area (CBSA) size = 2, 100,000 - 249,999	.012	-.031	.006	.013
CBSA size = 3, 250,000 - 499,999	.014	.051	-.009*	.056*
CBSA size = 4, 500,000 - 999,999	.017	.036	-.007	-.046*
CBSA size = 5, 1,000,000 - 2,499,999	.036	-.010	.001	.027
CBSA size = 6, 2,500,000 - 4,999,999	.092***	-.028	.002	-.066**
CBSA size = 7, 5,000,000+	.003	.058**	-.010**	-.051**
Age = 1, 1-Young <=25	.126***	.049	-.017***	-.158***
Age = 2, 2-Young Adults 25-40	.044*	.015	-.005	-.054**
age= 3. Base				
Age = 4, 4-Elder people 60-75	-.040	-.015	.003	.051**
Age = 5, 5-Old 75+	-.058*	-.020	.003	.074**
marstatus = 1, 1-Married	.026	-.020	.003	-.009
marstatus = 2, 2-Widowed	-.008	-.082**	.016*	.075*
marstatus = 3, 3-Divorced/Separated	.027	-.042	.007	.008
Never Married. Base				
Male. Base				

Sex = 2, Female	-.048***	.101***	-.018***	-.035**
White. Base				
race = 2, 2-Black	-.032	-.036	.008	.061**
race = 3, 3-Asian	-.072	.124	-.014**	-.038
race = 4, 4-Other/s	-.066**	.056	-.008	.018
Hispanic. Base				
Hispanic or non-Hispanic = 2, Non-Hispanic	.027	-.026	.004	-.005
American = 1	.114***	-.002	.001	-.113***
Non-American. Base				
education = 1, 1-Less than High School	-.064***	-.087***	.009	.142***
High school. Base				
education = 3, 3-Some college	.109***	.030	-.006*	-.134***
education = 4, 4-College	.175***	.035	-.011**	-.199***
education = 5, 5-More than College	.204***	.040	-.015***	-.229***
culeduc = 1	.204*	.010	-.024	-.190
culeduc=0. Base				
culeduc = 99	-.016	.072	-.016	-.040
pareduc = 1, 1-Less than HS	.003	-.020	.004	.013
High school. base				
pareduc = 3, 3-College or some college	-.002	.061	-.011	-.048
pareduc = 4, 4-More than college	.135	.029	-.016	-.147
pareduc = 5, 5-.	-.012	.026	-.005	-.009
hwoked = 1, 1-20h or less/Part- time	.142**	-.127**	.022*	-.038
hwoked = 2, 2-40h or less/Full- time	.076	-.075*	.012*	-.014
hwoked = 3, 3-More than 40h	.126**	-.012	-.003	-.112**
Not working. Base				
hwoked = 5, 5-Variable schedule	.161**	-.077	.007	-.092*
Major occupation recode - job 1 = 1, Management, business, and financial occupations	.061**	-.097***	.016**	.020
Professional and related occupations. Base				
Major occupation recode - job 1 = 3, Service occupations	-.063*	-.013	.002	.074**
Major occupation recode - job 1 = 4, Sales and related occupations	.067	-.096**	.015*	.014
Major occupation recode - job 1 = 5, Office and administrative support occupations	-.007	-.008	.001	.014

Major occupation recode - job 1 = 6, Farming, fishing, and forestry occupations	-0.140*	-0.137	.014	.262**
Major occupation recode - job 1 = 7, Construction and extraction occupations	-0.029	.018	-0.002	.012
Major occupation recode - job 1 = 8, Installation, maintenance, and repair occupations	-0.056	.031	-0.003	.027
Major occupation recode - job 1 = 9, Production occupations	-0.034	.012	-0.001	.023
Major occupation recode - job 1 = 10, Transportation and material moving occupations	-0.081*	.033	-0.004	.052
Major occupation recode - job 1 = 99, 99	.047	-0.084	.014	.023
Deaf or hearing difficulties No deaf. base	.022	-0.016	.002	-0.008
Blind or sight disability No blind base	-0.159***	.011	-0.007	.155**
Physical, mental or emotional disability No phys/mental dif. base	-0.104**	.042	-0.007	.068**
Walking or climbing stairs disability No motor. base	-0.125***	-0.001	-0.001	.128***

*** p<0.01, ** p<0.05, * p<0.1

Table 10- Biprobit Cultural Attendance and Practice

VARIABLES	Cultural Attendance	Cultural Participation
faminc = 1, 1-Less than 30,000/Poor faminc = 2, Base	-0.225	0.057
faminc = 3, 3-Between 60 and 100K/above Average	0.174	0.152
faminc = 4, 4-More than 100k/Rich	0.281*	-0.011
Total number of persons living in the household (household members) Non-metropolitan. Base	-0.074*	-0.098**
Metropolitan Area Core-based Statistical Area (CBSA) size = 2, 100,000 - 249,999	-0.516***	-0.194
CBSA size = 3, 250,000 - 499,999	0.172	0.266
CBSA size = 4, 500,000 - 999,999	-0.070	0.064
CBSA size = 5, 1,000,000 - 2,499,999	0.07	0.031

CBSA size = 6, 2,500,000 - 4,999,999	-0.042	0.045
CBSA size = 7, 5,000,000+	0.236	-0.105
Age = 1, 1-Young <=25	-0.068	0.365**
Age = 2, 2-Young Adults 25-40	-0.142	0.256*
age= 3. Base		
Age = 4, 4-Elder people 60-75	-0.195	-0.080
Age = 5, 5-Old 75+	-0.136	-0.147
marstatus = 1, 1-Married	-0.170	0.178
marstatus = 2, 2-Widowed	-0.545**	0.199
marstatus = 3, 3-Divorced/Separated	-0.259	0.090
Never Married. Base		
Male. Base		
Sex = 2, Female	0.103	0.334***
White. Base		
race = 2, 2-Black	-0.200	0.235*
race = 3, 3-Asian	0.695	0.587
race = 4, 4-Other/s	-0.318	0.020
Hispanic. Base		
Hispanic or non-Hispanic = 2, Non-Hispanic	-0.157	-0.175
American = 1	0.284*	0.211
Non-American. Base		
education = 1, 1-Less than High School	-0.113	0.115
High school. Base		
education = 3, 3-Some college	0.379***	0.138
education = 4, 4-College	0.742***	0.274*
education = 5, 5-More than College	1.120***	0.405***
culeduc = 99, omitted	-	-
culeduc=0. Base		
pareduc = 5, omitted	-	-
hworked = 1, 1-20h or less/Part-time	0.003	-0.341
hworked = 2, 2-40h or less/Full-time	-0.153	-0.818***
hworked = 3, 3-More than 40h	0.207	-0.496*
Not working. Base		
hworked = 5, 5-Variable schedule	0.568	-0.226
Major occupation recode - job 1 = 1, Management, business, and financial occupations	-0.074	-0.197
Professional and related occupations. Base		
Major occupation recode - job 1 = 3, Service occupations	-0.478**	-0.773***
Major occupation recode - job 1 = 4, Sales and related occupations	-0.167	-0.0460

Major occupation recode - job 1 = 5, Office and administrative support occupations	-0.409	-0.490*
Major occupation recode - job 1 = 6, Farming, fishing, and forestry occupations	-0.121	-0.449
Major occupation recode - job 1 = 7, Construction and extraction occupations	-0.909***	-0.670**
Major occupation recode - job 1 = 8, Installation, maintenance, and repair occupations	-0.452	-0.454
Major occupation recode - job 1 = 9, Production occupations	-0.229	-0.301
Major occupation recode - job 1 = 10, Transportation and material moving occupations	-0.124	-0.449
Major occupation recode - job 1 = 99, 99	-0.437	-0.992***
Deaf or hearing difficulties	0.089	-0.0390
No deaf. base		
Blind or sight disability	-0.948*	0.035
No blind base		
Physical, mental or emotional disability	-0.189	-0.144
No phys/mental dif. base		
Walking or climbing stairs disability	-0.574**	-0.416**
No motor. base		
Observations	837	837
Rho Value	0.581***	

*** p<0.01, ** p<0.05, * p<0.1

Table 11- Marginal Effects Cultural Attendance and Practice

VARIABLES	Attendance and Participation	Only attendance	Only Participation	No attendance nor Participation
faminc = 1, 1-Less than 30,000/Poor	-0.013	-0.074**	.035**	.052
faminc = 2, Base				
faminc = 3, 3-Between 60 and 100K/above Average	.062	.004	-.003	-.064
faminc = 4, 4-More than 100k/Rich	.032	.076*	-.036*	-.072
Total number of persons living in the household (household members)	-.036***	.007	-.003	.031**

Non-metropolitan. Base				
Metropolitan Area Core-based				
Statistical Area (CBSA) size = 2, 100,000 - 249,999	-.116	-.082	.041*	.158**
CBSA size = 3, 250,000 - 499,999	.093	-.027	.011	-.077
CBSA size = 4, 500,000 - 999,999	.008	-.035	.017	.011
CBSA size = 5, 1,000,000 - 2,499,999	.017	-.035	-.005	-.022
CBSA size = 6, 2,500,000 - 4,999,999	.007	-.023	.011	.006
CBSA size = 7, 5,000,000+	.001	.089	-.042	-.049
Age = 1, 1-Young <=25	.001	-.116**	.053*	-.027
Age = 2, 2-Young Adults 25-40	.051	-.106***	.049***	.006
age= 3. Base				
Age = 4, 4-Elder people 60-75	-.046	-.029	.015	.060
Age = 5, 5-Old 75+	-.056	.004	-.001	.053
marstatus = 1, 1-Married	.027	-.092**	.043**	.022
marstatus = 2, 2-Widowed	-.015	-.195***	.092***	.117
marstatus = 3, 3- Divorced/Separated	-.008	-.091**	.043**	.056
Never Married. Base				
Male. Base				
Sex = 2, Female	.102***	-.063**	.028**	-.068*
White. Base				
race = 2, 2-Black	.038	-.115**	.057**	.023
race = 3, 3-Asian	.244**	.024	-.015	-.252*
race = 4, 4-Other/s	-.034	-.088	.042	.080
Hispanic. Base				
Hispanic or non-Hispanic = 2, Non-Hispanic	-.066	.006	-.002	.062
American = 1	.092**	.017	-.010	-.100**
Non-American. Base				
education = 1, 1-Less than High School	.017	-.060	.028	.015
High school. Base				
education = 3, 3-Some college	.084**	.062*	-.030*	-.115***
education = 4, 4-College	.166***	.119**	-.059**	-.226***
education = 5, 5-More than College	.248***	.182***	-.090***	-.340***
culeduc = 1				
culeduc=0. Base				
culeduc = 99				
pareduc = 1, 1-Less than HS				
High school. base				

pareduc = 3, 3-College or some college

pareduc = 4, 4-More than college
pareduc = 5, 5-

hworke = 1, 1-20h or less/Part-time	-.091	.092	-.042	.041
hworke = 2, 2-40h or less/Full-time	-.238***	.179**	-.081**	.140
hworke = 3, 3-More than 40h Not working. Base	-.107	.187*	-.087*	.007
hworke = 5, 5-Variable schedule	.010	.208**	-.099**	-.120
Major occupation recode - job 1 = 1, Management, business, and financial occupations Professional and related occupations. Base	-.062	.034	-.015	.043
Major occupation recode - job 1 = 3, Service occupations	-.267***	.083	-.035	.219***
Major occupation recode - job 1 = 4, Sales and related occupations	-.033	-.031	.015	.049
Major occupation recode - job 1 = 5, Office and administrative support occupations	-.183**	.025	-.009	.166**
Major occupation recode - job 1 = 6, Farming, fishing, and forestry occupations	-.135	.089	-.040	.086
Major occupation recode - job 1 = 7, Construction and extraction occupations	-.293***	-.057	.032	.318***
Major occupation recode - job 1 = 8, Installation, maintenance, and repair occupations	-.178*	.004	.001	.173*
Major occupation recode - job 1 = 9, Production occupations	-.109	.021	-.008	.096
Major occupation recode - job 1 = 10, Transportation and material moving occupations	-.136	.088	-.039	.087
Major occupation recode - job 1 = 99, 99	-.320***	.152	-.067	.235**
Deaf or hearing difficulties No deaf. base	.001	.034	-.016	-.018
Blind or sight disability No blind base	-.109	-.256*	.122*	.242

Physical, mental or emotional disability	-0.062	-0.011	.006	.067
No phys/mental dif. base				
Walking or climbing stairs disability	-.183***	-.038	.021	.200***
No motor. base				

*** p<0.01, ** p<0.05, * p<0.1

Table 12- Biprobit Sport Attendance and Practice

VARIABLES	Sport Attendance	Sport Participation
faminc = 1, 1-Less than 30,000/Poor	-0.236***	-0.230***
faminc = 2, Base		
faminc = 3, 3-Between 60 and 100K/above Average	0.246***	0.225***
faminc = 4, 4-More than 100k/Rich	0.404***	0.284***
Total number of persons living in the household (household members)	-0.011	-0.061**
Non-metropolitan. Base		
Metropolitan Area Core-based Statistical Area (CBSA) size = 2, 100,000 - 249,999	0.043	-0.033
CBSA size = 3, 250,000 - 499,999	0.0256	-0.143
CBSA size = 4, 500,000 - 999,999	0.037	-0.083
CBSA size = 5, 1,000,000 - 2,499,999	0.111	-0.117
CBSA size = 6, 2,500,000 - 4,999,999	0.249***	0.077
CBSA size = 7, 5,000,000+	-0.018	-0.211***
Age = 1, 1-Young <=25	0.285***	0.430***
Age = 2, 2-Young Adults 25-40	0.105	0.256***
age= 3. Base		
Age = 4, 4-Elder people 60-75	-0.102	-0.222**
Age = 5, 5-Old 75+	-0.146	-0.359***
marstatus = 1, 1-Married	0.0966	0.114*
marstatus = 2, 2-Widowed	0.028	0.038
marstatus = 3, 3-Divorced/Separated	0.111	0.021
Never Married. Base		
Male. Base		
Sex = 2, Female	-0.189***	-0.244***
White. Base		
race = 2, 2-Black	-0.0519	-0.442***
race = 3, 3-Asian	-0.266	-0.128
race = 4, 4-Other/s	-0.214*	0.067
Hispanic. Base		
Hispanic or non-Hispanic = 2, Non-Hispanic	0.082	0.113

American = 1	0.332***	0.395***
Non-American. Base		
education = 1, 1-Less than High School	-0.204*	-0.157*
High school. Base		
education = 3, 3-Some college	0.313***	0.204***
education = 4, 4-College	0.472***	0.467***
education = 5, 5-More than College	0.531***	0.485***
culeduc = 1	0.448	0.639*
culeduc=0. Base		
culeduc = 99	-0.117	0.103
pareduc = 1, 1-Less than HS	0.033	-0.110
High school. base		
pareduc = 3, 3-College or some college	-0.015	0.288*
pareduc = 4, 4-More than college	0.289	0.275
pareduc = 5, 5-	-0.0328	0.049
hworked = 1, 1-20h or less/Part-time	0.416***	0.197
hworked = 2, 2-40h or less/Full-time	0.222	0.187
hworked = 3, 3-More than 40h	0.309*	0.360**
Not working. Base		
hworked = 5, 5-Variable schedule	0.433**	0.453**
Major occupation recode - job 1 = 1, Management, business, and financial occupations	0.213**	-0.037
Professional and related occupations. Base		
Major occupation recode - job 1 = 3, Service occupations	-0.179*	-0.176*
Major occupation recode - job 1 = 4, Sales and related occupations	0.221*	0.105
Major occupation recode - job 1 = 5, Office and administrative support occupations	-0.002	-0.166
Major occupation recode - job 1 = 6, Farming, fishing, and forestry occupations	-0.358	-0.082
Major occupation recode - job 1 = 7, Construction and extraction occupations	-0.078	0.066
Major occupation recode - job 1 = 8, Installation, maintenance, and repair occupations	-0.164	-0.098
Major occupation recode - job 1 = 9, Production occupations	-0.105	0.001
Major occupation recode - job 1 = 10, Transportation and material moving occupations	-0.288*	0.072
Major occupation recode - job 1 = 99, 99	0.133	-0.036
Deaf or hearing difficulties	0.081	0.017
No deaf. base		
Blind or sight disability	-0.479*	-0.245

No blind base		
Physical, mental or emotional disability	-0.313**	0.037
No phys/mental dif. base		
Walking or climbing stairs disability	-0.363***	-0.375***
No motor. base		
Observations	3,415	3,415
Rho value	0.509***	
*** p<0.01, ** p<0.05, * p<0.1		

Table 13- Marginal Effects Sport Attendance and Practice

VARIABLES	Attendance and Participation	Only attendance	Only Participation	No attendance nor Participation
faminc = 1, 1-Less than 30,000/Poor	-.069***	-.007	-.0223	.099***
faminc = 2, Base				
faminc = 3, 3-Between 60 and 100K/above Average	.085***	.005	.004	-.094***
faminc = 4, 4-More than 100k/Rich	.135***	.017*	-.024	-.128***
Total number of persons living in the household (household members)	-.009	.005*	-.015**	.019**
Non-metropolitan. Base				
Metropolitan Area Core-based Statistical Area (CBSA) size = 2, 100,000 - 249,999	.007	.008	-.020	.005
CBSA size = 3, 250,000 - 499,999	-.009	.018	-.048	.0389
CBSA size = 4, 500,000 - 999,999	.000	.013	-.033	.020
CBSA size = 5, 1,000,000 - 2,499,999	.013	.027***	-.059***	.020
CBSA size = 6, 2,500,000 - 4,999,999	.071***	.021**	-.041*	-.051
CBSA size = 7, 5,000,000+	-.026	.020*	-.058**	-.064**
Age = 1, 1-Young <=25	.123***	-.015	.041	-.148***
Age = 2, 2-Young Adults 25-40	.053**	-.015*	.046**	-.085***
Age= 3. Base				
Age = 4, 4-Elder people 60-75	-.046**	.011	-.042*	.078**
Age = 5, 5-Old 75+	-.069**	.019	-.073***	.123***
marstatus = 1, 1-Married	.035**	-.000	.011	-.045**
marstatus = 2, 2-Widowed	.010	-.001	.005	-.015

marstatus = 3, 3-Divorced/Separated Never Married. Base Male. Base	.027	.012	-.019	-.021
Sex = 2, Female White. Base	-.071***	.003	-.025*	.093***
race = 2, 2-Black	-.065***	.047***	-.109***	.128***
race = 3, 3-Asian	-.072	-.018	.021	.069
race = 4, 4-Other/s Hispanic. Base	-.045	-.028***	.071**	.002
Hispanic or non-Hispanic = 2, Non-Hispanic	.031	-.002	.014	-.043
American = 1 Non-American. Base	.109***	.003	.048**	-.159***
education = 1, 1-Less than High School High school. Base	-.048***	-.011	-.013	.073**
education = 3, 3-Some college	.089***	.019**	-.007	-.100***
education = 4, 4-College	.161***	.007	.022	-.190***
education = 5, 5-More than College	.180***	.012	.010	-.202***
culeduc = 1 culeduc=0. Base	.206**	-.030	.034	-.210**
culeduc = 99	-.013	-.030	.054	-.012
pareduc = 1, 1-Less than HS High school. base	-.007	.019	-.037	.025
pareduc = 3, 3-College or some college	.026	-.032	.086	-.081
pareduc = 4, 4-More than college	.107	.003	.001	-.111
pareduc = 5, 5-.	-.002	-.010	.021	-.010
hwoked = 1, 1-20h or less/Part- time	.118***	.034	-.039	-.112**
hwoked = 2, 2-40h or less/Full- time	.070*	.008	.005	-.083*
hwoked = 3, 3-More than 40h Not working. Base	.112**	-.001	.030	-.141**
hwoked = 5, 5-Variable schedule	.156**	.002	.020	-.178***
Major occupation recode - job 1 = 1, Management, business, and financial occupations Professional and related occupations. Base	.046**	.033*	-.061	-.018
Major occupation recode - job 1 = 3, Service occupations	-.056**	-.004	-.014	.074**
Major occupation recode - job 1 = 4, Sales and related occupations	.066*	.015	-.025	-.056

Major occupation recode - job 1 = 5, Office and administrative support occupations	-0.018	.018	-.048	.049
Major occupation recode - job 1 = 6, Farming, fishing, and forestry occupations	-.085	-.028	.052	.061
Major occupation recode - job 1 = 7, Construction and extraction occupations	-.013	-.014	.039	-.012
Major occupation recode - job 1 = 8, Installation, maintenance, and repair occupations	-.046	-.009	.007	.048
Major occupation recode - job 1 = 9, Production occupations	-.025	-.011	.025	.011
Major occupation recode - job 1 = 10, Transportation and material moving occupations	-.061	-.032**	.089*	.004
Major occupation recode - job 1 = 99, 99	.027	.021	-.042	-.007
Deaf or hearing difficulties No deaf. base	.021	.009	-.014	-.016
Blind or sight disability No blind base	-.118**	-.032*	.021	.129
Physical, mental or emotional disability No phys/mental dif. base	-.068*	-.036***	.082**	.022
Walking or climbing stairs disability No motor. base	-.111***	-.009	-.037	.157***

*** p<0.01, ** p<0.05, * p<0.1