



Munich Personal RePEc Archive

What do you prefer for a relaxing and cultural time at home: Reading, watching TV, or listening to the radio?

Molina, Jose Alberto and Campaña, Juan Carlos and Ortega, Raquel

University of Zaragoza, Spain, University of Zaragoza, Spain, University of Zaragoza, Spain

19 December 2015

Online at <https://mpra.ub.uni-muenchen.de/68454/>
MPRA Paper No. 68454, posted 21 Dec 2015 05:12 UTC

What do you prefer for a relaxing and cultural time at home: Reading, watching TV, or listening to the radio?

José Alberto Molina*
University of Zaragoza, Spain
IZA, Germany

Juan Carlos Campaña
University of Zaragoza, Spain

Raquel Ortega
University of Zaragoza, Spain

Abstract

This paper studies the determinants of time spent by Spanish consumers on reading, watching TV, and listening to the radio, by estimating a SUR model with data from the Spanish Time Use Survey for 2009-2010. The existing literature on the consumption of cultural goods has, so far, failed to address the determinants of the amount of time adults spend at home interacting with cultural goods. We find that age has a positive influence on the time dedicated to reading, while the opposite occurs with time spent watching TV. Men spend more time than women watching television and listening to the radio, while those in our sample with a higher level of education spend more time reading. Individuals with a lower level of education spend more time watching television. The more children there are in the family, the less time is spent on all three options, but this negative effect diminishes as the children grow older. Finally, living in a larger city has a positive effect on the time dedicated to all three of our cultural options.

Keywords: Reading, Watching TV, Listening to radio, Time uses at home
JEL Classification: D12, Z11, J22

* Corresponding author. J.A. Molina. Email: jamolina@unizar.es. Telephone: 34 976 76 18 18. Fax: 34 976 76 19 96.
Web: <http://dae.unizar.es/jamolina/>

Introduction

Reading, watching TV, or listening to the radio are three cultural options for a relaxing time for any consumer at home. This paper studies the determinants of the time dedicated by Spanish consumers to these three activities. The literature has paid some attention to the demand for specific cultural goods outside the home, but has largely overlooked the matter of the time, and its determinants, that consumers spend on cultural goods at home.

Thus, for the case of theatre attendance, Grisolia and Willis (2012) use latent class models to identify, on the basis of various socio-economic and educational variables, three market segments for live theatre in England: the “affluent class”, the “popular class” and the “intellectual class”. Castiglione and Infante (2015) demonstrate that the demand for theatre in Italy is consistent with the model of rational addiction, showing that the model is applicable, not only to harmful addictions such as tobacco or alcohol, but also to “beneficial” addictions, such as theatre attendance in Italy.¹

For the case of going to the cinema, Dewenter and Westermann (2005) apply econometric techniques to identify interrelations with respect to movie-going per capita in Germany for the period 1950-2002, and, particularly, use co-integration methods to find a long-run relationship between cinema attendance, real income, and prices. Another cultural good studied for the case of Spain are the *Fiestas* of Seville, in Palma et al. (2013), where the authors estimate a zero-truncated count data model using a dataset of attendees at the *Fiestas* in 2009, with one main result being that, contrary to the great majority of other cultural determinants, traditional socio-economic variables, such as education or income, do not appear to be significant in determining attendance at the *Fiestas*.

In this paper, we analyze specifically the time that consumers spend on three cultural activities at home (reading, watching TV, and listening to the radio) by estimating a SUR model with data from the Spanish Time Use Survey for 2009-2010.² Assuming that cultural consumption has positive effects for the consumer, and for society as a whole, we estimate a simultaneous model of time use that depends on

¹ The rational addiction model was initially developed by Becker and Murphy (1988) and later applied, in the case of Spain, to tobacco (Escario and Molina, 2000, 2001) and alcohol (Duarte and Molina, 2004).

² The SUR model has been used to describe the simultaneity of consumption goods (see, for example, for the case of Spain, Molina, 1994, for food; Molina, 1997, for transport goods; Molina, 1999, for leisure; and Molina, 2002, for all consumption goods)

demographic, educational, and family variables, thus bridging the gap in the literature of consumption of cultural goods that has not, to the best of our knowledge, addressed the determinants of the time spent by adult members of families on cultural activities at home.

Data and Variables

This study uses data from the Spanish Time Use Survey from the fourth quarter of 2009 to the third quarter of 2010, inclusive. Our sample consists of all family members who are 10 years of age and older. Each respondent fills in a diary for a specific day of the week, indicating what activities were done during the course of the day in intervals of 10 minutes (144 intervals in total). Time-use surveys provide individual information and are the typical instrument used to analyse time-allocation decisions (Aguiar and Hurst, 2007; Giménez-Nadal and Sevilla, 2012). Furthermore, an extensive literature confirms the validity and reliability of data from diaries and its advantages over other time-use surveys based on simple questions, in which those being surveyed are asked to estimate the time dedicated to a certain activity on a “typical day”, or during a “typical week”; for example, the hours that the person surveyed has worked the day or week before (Robinson and Godbey, 1999; Bianchi et al, 2006; Kalenkoski and Pabilonia, 2012).

Following prior time-use studies, and to minimize the role of time-allocation decisions with a strong intertemporal component concerning life cycles (such as education and retirement), we restricted our sample to those individuals who are neither students, nor retired, and who are between the ages of 21 and 65 (inclusive). We focus on analysing the time spent by those surveyed on three activities: reading, watching TV, and listening to the radio.³

For the variables that could influence how much time the respondents spend on these three activities, we use: age and age squared divided by 100 (Kalenkoski et al, 2005; Aguiar and Hurst, 2007; Gimenez-Nadal., et al 2011), in order to take into account the allocation of time to an activity over the whole life cycle. Gender is an important variable to consider in that free-time preferences can differ, depending on whether the respondent is male or female (Gimenez-Nadal and Sevilla, 2012). We

³ Reading refers to time dedicated to the Reading of diaries, books, and others. Watching TV refers to time dedicate to watching TV, DVDs and videos. Listening to the radio refers to time dedicated to listening to radio or recordings.

control for three levels of education, as in Campaña, et al (2015): primary education (less than a secondary school diploma), Secondary education (a secondary school diploma) and university education (more than a secondary school diploma). Education levels influence the distribution of time that individuals allocate to different activities (Kalenkoski et al., 2005; Giménez-Nadal and Molina, 2013).

We also take into consideration whether the respondents are living together as couples. Studies such as Gimenez-Nadal and Molina (2015) show that individual good health can lead to the spending of more time on market work, and less time on other activities, such as leisure, so we control for the state of health of the individuals (self-reported) with five levels (1=very good state of health...5=very poor state of health). The number of children, as in Kalenkoski et al, (2005) and Gimenez-Nadal et al, (2011), is considered, depending on age and schooling (from 0-2 years old, from age 3-5, from age 6-12, and from age 13-17). We also consider the size of the municipality where the respondents live, with five classifications: municipality with a population greater than 100,000, with a population between 50,000 and 100,000, with a population between 20,000 and 50,000, with a population between 10,000 and 20,000, and with a population less than 10,000.

(Table 1)

Table 1 shows the descriptive statistics for the average time spent, on a daily basis, on reading, watching TV, and listening to the radio, along with the descriptive statistics for our socio-demographic variables: Column 1 for men, Column 2 for women, and Column 3 for the whole sample. We can clearly see that women spend more time reading than do men (0.26 hours daily), whereas men spend more time watching TV than do women (2.17 hours daily). As regards listening to the radio, men spend a little more time on this activity than do women (0.05 hours daily). The average age for men and women is 43 and 44 years, respectively (considering that our sample is restricted to individuals between the ages of 21 and 65). Concerning education levels, the majority of the individuals have had a primary education (48%) and live with a partner (74%). As for their state of health, the majority of the men (61%) and women (59%) report being in good health. With regard to household characteristics, there is an average of more than 3 inhabitants per household and the largest number of minors in the households is in the age range between 6 and 12 years(0.27). Furthermore, almost half of the men and women included in this study (46%) live in a municipality with a population over 100,000.

Methodology and Results

Hamermesh and Lee (2007) point out that time is a scarce commodity and that the majority of individuals must choose their leisure activities carefully, after having completed their daily obligations (market work and domestic production). Each individual reports their uses of time and, as in other time-use studies (Gimenez-Nadal and Molina, 2013), a SUR (seemingly unrelated regressions) model is estimated for the time individuals spend reading, watching TV, and listening to the radio (as in the simultaneous equation model used for estimating cultural goods in Dewenter and Westermann, 2005).

The statistical model is as follows: For an individual “ i ”, T_{ri} , T_{wi} and T_{li} , represent the hours reported by the individuals spent on reading, watching TV, and listening to the radio, X_i is the vector of the characteristics of the household and the individuals, and ε_{ri} , ε_{wi} , ε_{li} represent the random variables for the factors not measured. Using this model, we estimate the following three equations:

$$T_{ri} = \beta X_i + \varepsilon_{ri} \quad (1)$$

$$T_{wi} = \beta X_i + \varepsilon_{wi} \quad (2)$$

$$T_{li} = \beta X_i + \varepsilon_{li} \quad (3)$$

Concerning the specification of the error terms for each individual, we permit the correlations in the unobserved determinants of the activities and the error terms are normally distributed as a whole, without restrictions in the correlation. This specification shows the time limitation that could lead individuals to spend more time on one activity, and less time on another. Moreover, we assume that the error components are independent:

$$\begin{pmatrix} \varepsilon_{ri} \\ \varepsilon_{wi} \\ \varepsilon_{li} \end{pmatrix} \sim N \left(\begin{pmatrix} 0 \\ 0 \\ 0 \end{pmatrix}, \begin{pmatrix} \sigma_{ri}^2 & \rho_{riwi} \sigma_{ri} \sigma_{wi} & \rho_{ril} \sigma_{ri} \sigma_{li} \\ \rho_{wiri} \sigma_{wi} \sigma_{ri} & \sigma_{wi}^2 & \rho_{wili} \sigma_{wi} \sigma_{li} \\ \rho_{liri} \sigma_{li} \sigma_{ri} & \rho_{liwi} \sigma_{li} \sigma_{wi} & \sigma_{li}^2 \end{pmatrix} \right)$$

Columns 1, 2 and 3 in Table 2 show the results of our estimations for the time dedicated to reading, watching TV, and listening to the radio, respectively. As shown, age influences the time spent on these three activities in different ways. Older individuals spend more time reading, while younger respondents prefer watching TV. Less and less time is spent on reading as the respondent ages. Men spend more time watching TV and listening to the radio than do women, as Table 1 shows.

Both reading and watching TV are activities that are influenced by the education level of the respondent. In particular, having a higher level of education leads individuals to spend more time reading, and less time watching TV. Thus, cultural time is strongly determined by the education level of the consumer, as also shown by Diniz and Machado (2011), who studied artistic and cultural expenditures in Brazil. Living in a couple has a negative influence on the time dedicated to reading and listening to the radio. Health status shows a significant influence on the time dedicated to watching TV, in such a way that adults with better health spend less time watching TV.

Taking into account the number of minors in the household, we observe that a larger number of minors between the ages of 0 and 2, 3 and 5, and 6 and 12 has a statistically significant negative influence on the time spent reading, watching TV, and listening to the radio. Thus, while we can say that more children in the household has a negative effect on the time parents spend on all three of our cultural activities, the effect is diminished as the children grow older. These results are in accordance with those of Favaro and Frateschi (2007) with respect to listening to music in Italy, where the presence of the youngest children at home is an inhibiting factor on the demand for all kinds of music. With respect to the size of the city, we can see significant and positive values for the municipality from 20,000 inhabitants and up; that is to say, size 3, size 2 and size 1. Thus, living in larger cities produces a positive effect on the time dedicated to these three cultural options.

Conclusions

In this paper, we examine the determinants of the time spent by Spanish consumers in reading, watching TV, and listening to the radio. To that end, we estimate a SUR model using information from the Spanish Time Use Survey for 2009-2010, in an attempt to bridge the gap in the literature of the consumption of cultural goods that has overlooked what happens in the home.

Our results indicate that age influences differentially the time dedicated to these three activities. Older individuals tend to spend more time reading, while younger members of the household watch more TV. Being male influences the time spent watching TV and listening to the radio in a statistically significant and positive way. Having a higher level of education leads individuals to spend more time reading, with those with a lower level of education spend more time watching TV. Adults with better health dedicate less time to watching TV. A larger number of children in the household has a negative influence on the time dedicated to all three options, but this negative effect is diminished as the children grow older. Finally, being an inhabitant of a larger city has a positive effect on the time spent on these three cultural options.

In the context of the general debate on cultural policies, some recommendations can be derived from our empirical results for the case of Spain. Thus, if consumers at home behave according to certain socio-demographic variables, policy makers may have an influence on the “beneficial” consumption of cultural goods by devising policy instruments to increase the “at-home” demand for such activities, perhaps by encouraging private contributions and opening a discussion about cultural subsidies. For example, it is clear that public policy can encourage the activity of reading amongst *juniors*, with *seniors* acting as role models. There are also opportunities for policy intervention with consumers who lack a university education. Finally, it is clear that the number of family member does limit the demand of cultural goods at home, maybe, policy-makers must facilitate the demand of children with respect to specific cultural activities at home (e.g. cultural programs on TV,...).

References

- Aguiar, M. and Hurst, E. (2007) Measuring trends in leisure: the allocation of time over five decades. *Quarterly Journal of Economics* 115: 969–1006.
- Becker, G.S. and Murphy, K.M. (1988). A theory of rational addiction. *Journal of Political Economy* 96: 675-700.
- Bianchi, S. M. (2000) Maternal employment and time with children: dramatic change or surprising continuity? *Demography* 37: 401–414.
- Campaña, J., Giménez, J. I. and Molina, J. A. (2015) Gender differences in the distribution of total work-time of Latin-American families: the importance of social norms. IZA DP No. 8933.

- Castiglione, C. and Infante, D. (2015) Rational addiction and cultural goods: the case of the Italian theatregoer. *Journal of Cultural Economics*, forthcoming.
- Dewenter, R. and Westermann, M. (2005) Cinema demand in Germany. *Journal of Cultural Economics* 29: 213-231.
- Diniz, S.C. and Machado, A.F. (2011) Analysis of the consumption of artistic-cultural goods and services in Brazil. *Journal of Cultural Economics* 35: 1-18.
- Duarte, R. and Molina, J.A. (2004) Alcohol abuse among adolescents: regional evidence from Spain. *International Journal of Consumer Studies* 28: 18-27.
- Escario, J.J. and Molina, J.A. (2000) Estimating anticipated and non-anticipated demand elasticities for cigarettes in Spain. *International Advances in Economic Research* 6: 782-793.
- Escario, J.J. and Molina, J.A. (2001) Why do European consumers smoke? Responses from the rational addiction model. *International Journal of Consumer Studies* 25: 30-42.
- Favaro, D. and Frateschi, C. (2007) A discrete choice model of consumption of cultural goods: the case of music. *Journal of Cultural Economics* 31: 205-234.
- Gimenez-Nadal, J. I. and Molina, J. A. (2013) Parents' education as a determinant of educational childcare time. *Journal of Population Economics* 26: 719-749.
- Gimenez-Nadal, J. I. and Molina, J. A. (2015) Health status and the allocation of time: Cross-country evidence from Europe. *Economic Modelling* 46: 188-203.
- Gimenez-Nadal, J. I. and Sevilla, A. (2012) Trends in time allocation: a cross-country analysis. *European Economic Review* 56: 1338-59.
- Gimenez-Nadal, J. I., Molina, J. A. and Ortega, R. (2011). Self-employed mothers and the work-family conflict. *Applied Economics* 44: 2133-2147.
- Grisolia, J.M. and Willis, K.G. (2012). A latent class model of theatre demand. *Journal of Cultural Economics* 36: 113-139.
- Hamermesh, D. S. and Lee, J. (2007). Stressed out on four continents: Time crunch or yuppie kvetch? *The review of Economics and Statistics* 89: 374-383.
- Kalenkoski, C. M. and Pabilonia, S. W. (2012) Time to work or time to play: the effect of student employment on homework, sleep, and screen time. *Labour Economics* 19: 211-21.
- Kalenkoski, C., Ribar, D. and Stratton, L. (2005) Parental child care in single parent, cohabiting, and married couple families: time diary evidence from the

- United Kingdom. *American Economic Review: Papers and Proceedings* 95: 194–198.
- Molina, J.A. (1994). Food demand in Spain: an application of the Almost Ideal System. *Journal of Agricultural Economics* 45: 252-258.
- Molina, J.A. (1997). Two-stage budgeting as an economic decision making process for Spanish consumers. *Managerial and Decision Economics* 18: 27-32.
- Molina, J.A. (1999). Is leisure weakly separable from consumption goods in Spain? *Economie Appliquée* 52: 125-143.
- Molina, J.A. (2002). Modelling the demand behavior of Spanish consumers using parametric and non-parametric approaches. *Journal for Studies in Economics and Econometrics* 26: 19-36.
- Palma, M.L., Palma, L. and Aguado, L.F. (2013) Determinants of cultural and popular celebration attendance: the case study of Seville Spring Fiestas. *Journal of Cultural Economics* 37: 87-107.
- Robinson, J. P. and Godbey, G. (1999) *Time for Life: The Surprising Ways Americans Use Their Time*. Pennsylvania State University Press, University Park, PA

Author Biographies

José Alberto Molina (PhD, University of Zaragoza, Spain), Professor of Economics, Department of Economic Analysis, Faculty of Economics and Business Studies, University of Zaragoza, Zaragoza, 50005, Spain, jamolina@unizar.es)

Juan Carlos Campaña (Master in Economics, University of Zaragoza, Spain), Candidate, Department of Economic Analysis, Faculty of Economics and Business Studies, University of Zaragoza, Zaragoza, 50005, Spain, jccampanan@gmail.com

Raquel Ortega (PhD, University of Zaragoza, Spain), Professor of Business Studies, Department of Business Studies, Faculty of Economics and Business Studies, University of Zaragoza, Zaragoza, 50005, Spain, rortega@unizar.es)

Table 1. Descriptive Statistics

Variables	Men		Women		Total	
	Average	SD	Average	SD	Average	SD
Reading (daily hours)	0.25	(0.642)	0.26	(0.602)	0.25	(0.621)
Watching TV (daily hours)	2.17	(2.037)	1.92	(1.742)	2.03	(1.885)
Listening to radio (daily hours)	0.05	(0.308)	0.03	(0.256)	0.04	(0.281)
Age	43.34	(10.817)	44.10	(11.225)	43.76	(11.048)
Primary education	0.48	(0.499)	0.49	(0.500)	0.48	(0.500)
Secondary education	0.33	(0.469)	0.29	(0.452)	0.30	(0.460)
University education	0.20	(0.398)	0.22	(0.416)	0.21	(0.408)
Living as a couple	0.75	(0.436)	0.73	(0.442)	0.74	(0.439)
Very good health	0.24	(0.424)	0.22	(0.413)	0.23	(0.418)
Good health	0.61	(0.488)	0.59	(0.491)	0.60	(0.490)
Acceptable health	0.11	(0.316)	0.14	(0.343)	0.13	(0.331)
Bad health	0.04	(0.186)	0.04	(0.207)	0.04	(0.197)
Very bad health	0.01	(0.075)	0.01	(0.086)	0.01	(0.081)
N. household members	3.29	(1.253)	3.25	(1.270)	3.27	(1.263)
N. children 0-2	0.13	(0.375)	0.13	(0.365)	0.13	(0.369)
N. children 3-5	0.13	(0.361)	0.13	(0.359)	0.13	(0.360)
N. children 6-12	0.27	(0.561)	0.27	(0.553)	0.27	(0.557)
N. children 13-17	0.20	(0.468)	0.20	(0.466)	0.20	(0.467)
Municipality size 1	0.45	(0.498)	0.47	(0.499)	0.46	(0.498)
Municipality size 2	0.12	(0.324)	0.11	(0.318)	0.12	(0.321)
Municipality size 3	0.11	(0.309)	0.11	(0.316)	0.11	(0.313)
Municipality size 4	0.09	(0.290)	0.09	(0.289)	0.09	(0.290)
Municipality size 5	0.23	(0.422)	0.21	(0.409)	0.22	(0.415)
Observations	5624		6809		12433	

Note: Standard deviations in parentheses. Data from the Spanish TUS 2009-2010. The sample is restricted to individuals between the ages of 21 and 65 (inclusive, who are neither students nor retired). Primary education is equivalent to having less than a secondary school diploma. Secondary education is equivalent to having a secondary school diploma. University education is equivalent to having more than a secondary school diploma. Municipality size 1 is equivalent to a municipality with a population greater than 100,000, municipality size 2 is equivalent to a municipality with a population between 50,000 and 100,000, municipality size 3 is equivalent to a municipality with a population between 20,000 and 50,000, municipality size 4 is equivalent to a municipality with a population between 10,000 and 20,000, and municipality size 5 is equivalent to a municipality with a population less than 10,000.

Table 2. Estimations of the SUR model

Variables	Reading	Watching TV	Listening to radio
	(1)	(2)	(3)
Age	0.0142*** (0.00397)	-0.0320*** (0.0118)	-0.00258 (0.00185)
Age squared	-0.00656 (0.00454)	0.0495*** (0.0135)	0.00271 (0.00211)
Men	-0.00296 (0.0109)	0.296*** (0.0323)	0.0253*** (0.00505)
Secondary education	0.126*** (0.0130)	-0.431*** (0.0385)	0.000447 (0.00604)
University education	0.272*** (0.0148)	-0.720*** (0.0441)	0.00674 (0.00690)
Living as a couple	-0.0367*** (0.0138)	0.0449 (0.0411)	-0.0295*** (0.00644)
Very good health	-0.00409 (0.0673)	-1.335*** (0.200)	-0.0315 (0.0313)
Good health	-0.00647 (0.0665)	-1.221*** (0.198)	-0.0345 (0.0310)
Acceptable health	-0.0496 (0.0677)	-1.017*** (0.201)	-0.0223 (0.0315)
Bad health	-0.0443 (0.0712)	-0.337 (0.212)	5.95e-05 (0.0331)
N. household members	0.00181 (0.00508)	-0.00755 (0.0151)	-0.000735 (0.00236)
N. children 0-2	-0.0811*** (0.0159)	-0.219*** (0.0472)	-0.0171** (0.00739)
N. children 3-5	-0.0610*** (0.0160)	-0.221*** (0.0474)	-0.0114 (0.00743)
N. children 6-12	-0.0331*** (0.0112)	-0.133*** (0.0332)	-0.00423 (0.00520)
Municipality size 1	0.0886*** (0.0141)	0.222*** (0.0420)	0.0183*** (0.00658)
Municipality size 2	0.0486** (0.0196)	0.307*** (0.0582)	0.0272*** (0.00912)
Municipality size 3	0.0404** (0.0199)	0.324*** (0.0592)	0.0272*** (0.00927)
Municipality size 4	0.00788 (0.0212)	0.124** (0.0628)	-0.00163 (0.00984)
Intercept	-0.231** (0.107)	4.134*** (0.317)	0.139*** (0.0497)
Observations	12,433	12,433	12,433

Note: Standard errors in parentheses. Data from the Spanish TUS 2009-2010. The sample is restricted to individuals between the ages of 21 and 65 (inclusive, who are neither students nor retired). Primary education is equivalent to having less than a secondary school diploma. Secondary education is equivalent to having a secondary school diploma. University education is equivalent to having more than a secondary school diploma. Municipality size 1 is equivalent to a municipality with a population greater than 100,000, municipality size 2 is equivalent to a municipality with a population between 50,000 and 100,000, municipality size 3 is equivalent to a municipality with a population between 20,000 and 50,000, municipality size 4 is equivalent to a municipality with a population between 10,000 and 20,000, and municipality size 5 is equivalent to a municipality with a population less than 10,000. Sunday taken as a reference day. * Significant at 90%. ** Significant at 95%. *** Significant at 99%.