

# **Consumption of Cultural goods and services and time allocation: a case of Brazilian Metropolitan Areas**

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## **I- Introduction**

The consumption of culture is a time intensive activity (Stigler and Becker, 1977; Withers, 1980; Werck and Heyndels, 2007; Zieba, 2009). In order to visit museums and art galleries, to attend concerts, to watch movies and plays, or even to read a book, individuals must devote a considerable amount of time exclusively to that activity. However, studies that discussed the consumption of culture in Brazil have only analyzed factors associated with expenditures (Diniz and Machado, 2011; Paglioto and Machado, 2012) and did not discuss time allocation, another important feature that should also be addressed while discussing cultural consumption.

In order to shed light on this topic with both perspectives, expenditure and time allocation, this paper utilizes two different databases. The first one is entitled Household Budget Survey (In Portuguese: POF - Pesquisa de Orçamento Familiar), which contains information of household expenditure on many areas, including culture goods and services. The second database, named National Household Sample Survey (In Portuguese: PNAD - Pesquisa Nacional por Amostra de Domicílios), brings information about time expenditure, including time allocated working, while doing domestic chores and

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commuting. With the combined use of these two databases, we were able to discuss associations of expenditure and time allocation with the consumption of cultural activities, while considering different variables, such as education levels, sex, age, participation in the labor market and place of residence.

The paper was divided in six sections, including this introduction. The second section presents theoretical models associating culture consumption and time allocation. The next section describes some stylized facts about culture consumption in Brazil. Fourth section presents the databases and the applied methodology, which is the multivariate technique of Cluster analysis. The empirical results are shown in the fifth section, and the last one concludes the paper.

## **II – Theoretical models associating time allocation with culture consumption**

The model developed by Becker (1965) was a reformulation of the consumption theory, as families were no longer passive utility maximizers, only buying goods and services in the market, but active maximizers, also producing goods and services, and investing in capital building. The author propose a utility function that also considers goods that are actively produced by the agents having as inputs goods bought in the market, time allocation, personal abilities, training and human capital.

Following Becker (1965), households would combine time allocation with goods bought in the market to produce other goods, which can be defined as follows:

$$Z_i = F_i(x_{1i}, x_{2i}, \dots, x_{ki}, t_{1i}, t_{2i}, \dots, t_{ji}, s_{1i}, s_{2i}, \dots, s_{ji}, Y_i),$$

where  $Z_i$  are the  $i$  goods,  $F$  are  $i$  production functions, each related to a particular good,  $x$  are  $k$  goods or services bought in the market and used as inputs for the production of the  $Z_i$ ,  $t$  is time allocated by the  $j$  individuals on the production of the goods,  $s$  is human capital of each individual, and  $Y$  represents all the other inputs.

The utility is a function of these  $Z_i$  goods:

$$U = U(Z_1, Z_2, \dots, Z_i)$$

Thus,  $Z_i$  do not have market prices, as they cannot be bought or sold in the market, but shadow-prices that are defined by their cost of production, which include opportunity costs. Therefore, the model highlighted that the concept of income should be replaced by an ampler concept that would include the availability of time.

An extension of the Becker's model (1965) was proposed by Stigler and Becker (1971). The authors described that individuals tend to show stable preferences, important feature in utilitarian microeconomic models, which might promote a virtuous cycle of culture consumption due to habit building.

These author incorporated different evaluative perspectives, which were overlooked by the conventional microeconomic theory, including human capital as an input for production, personal habits and peer effects. The development of these theoretical models emphasized not only that culture consumption is time intensive, but also the importance of life cycle factors and habit building.

In this vein, culture consumption, as a time intensive activity, should be analyzed also with this perspective that includes the opportunity cost of time. For instance, in order to watch a movie in the cinema, the individuals has not only to buy the ticket, but also to commute to the cinema and to spend approximately two hours watching the movie, time that could be invested in other activities, such as working or doing domestic chores.

Based on this feature, Moore (1966) and Gapinski (1986) emphasize that income might have an ambiguous effect on the demand for time intensive cultural activities. On the one hand, cultural consumption is positively associated with the availability of income, and potentially enhances culture consumption. However, on the other hand, the opportunity cost of consuming this type of products also increase, as the individual's opportunity cost is related to its hourly wage. Zieba (2009) separately analyzed these two opposing effects

using the concept of ample income, which takes into account monetary income and time availability for leisure. The author observed that culture consumption was more associated with this concept than with monetary income, indicating the importance of time in order to explain culture consumption.

### **III – Stylized facts about culture consumption in Brazil**

According to Diniz and Machado (2011), direct cultural-artistic goods and services have a very low participation in the cultural consumption budget of Brazilian households, around 27% in 2002-2003, and this value was reasonable stable between 2002-2003 and 2008-2009 (Paglioto and Machado, 2012).

In addition, cultural consumption is unequally distributed among the population, being mostly determined by educational levels and income strata. Both variables suggest that individuals in higher social stratum might have more intensively being exposed to cultural activities due to individual and/or familiar practices. This accumulation of specific human capital would promote habit building and the implementation of a virtuous cycle of culture consumption.

A survey analyzed the habits associated with time allocation and culture consumption in 25 states in Brazil in 2013<sup>2</sup>. The author observed that during week-days, individuals mostly allocated time to day-to-day activities, such as sleeping, eating, working, doing domestic chores, watching TV, and commuting. In their leisure time in week-ends, Brazilians mostly stayed at home, doing activities such as watching TV, eating and domestic chores, or went out to restaurants, to shopping centers, or to non-cultural activities. That is, the activities showed little relation with the consumption of culture.

For instance, specifically associated with culture consumption, 51% of the individuals did not incorporate any cultural activity in their leisure time in week-ends. Among the few cultural activities described by the interviewers, many cited going to churches and attending religious services, which might only partially be associated with cultural

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<sup>2</sup> See <http://www.sesc.com.br/portal/site/publicosdecultura/>

activities. More than 70% of the individuals had never gone to an opera, to a classical music concert, to a ballet, to a dance performance, or to an artistic exposition.

Which were the main reasons for this low cultural consumption? Initially unexpectedly, income and lack of time were not among the main reasons for not consuming culture goods and services. Individuals declared as their main reasons that they didn't like these activities or did not find them interesting/important, and/or did not have the habit of consuming cultural activities.

These results suggest that culture consumption in Brazil is heavily dependent on previously acquired habits, which probably can be well addressed by the model proposed by Stigler and Becker (1971). We empirically analyze the relationship between education, life cycle and time allocation with the consumption of culture in order to address this and other issues.

#### **IV - Methodology**

This section presents the databases, the Household Budget Survey (HBS) and the National Household Sample Survey (NHSS), the selected variables from both databases, and the methodology used in the paper.

##### **IV.1 – Databases**

We used as databases the HBS of 2008/2009 and the NHSS of the same years, both surveys are conducted by the Brazilian Institute of Geography and Statistics (In Portuguese: Instituto Brasileiro de Geografia e Estatística)

The first database has very detailed information about household's expenditures, as well as socioeconomic and demographic variables. The survey was done between May 2008 and May 2009 with a sample size of over 55000 households in the following Metropolitan Areas in Brazil: Belem, Fortaleza, Recife, Salvador, Belo Horizonte, Rio de Janeiro, São Paulo, Curitiba e Porto Alegre. Expenditures are expressed as monetary values, and therefore do not include the consumption of free cultural activities.

The NHSS is an annual survey that has socioeconomic and demographic information about the Brazilian population. Moreover, eventually, the survey has complementary questionnaires with questions associated with fertility, health and other subjects. Besides, the database has information of time allocated working, doing domestic chores and commuting. The sample sizes were respectively 391.868 and 399.387 individuals in 2008 and 2009. However, in order to have a similar sample as in the HBS database, we selected those individuals who lived in one of the above-mentioned Metropolitan Areas.

Therefore, the HBS has information about cultural expenditures and the NHSS has information about time allocation, and the use of both databases conjointly enables the analysis that we proposed in this paper. In order to do so, we harmonized the databases: in both of them we selected the household heads, aged 25 and above, with well-defined schooling level. The final sample sizes for HBS was 7749 observations and for the NHSS was 87215.

#### **IV. 2 – Variables**

This subsection presents the variables we used in our analysis. Table 1 shows the variables selected from HBS, all associated directly or indirectly with expenditures in cultural activities. These selection was based on Diniz and Machado (2011) and Paglioto and Machado (2012).

Table 1 – Variables used for cultural expenditures from the Households Budget Survey of 2008/2009

<b>Classification</b>	<b>Group</b>	<b>Products</b>
<b>Direct</b>	Visits to museums, expositions, theaters, dance performances, operas, shows, cinemas and circus	Tickets to museums, expositions, theaters, dance performances, operas, shows, cinemas and circus
	Reading articles	Non-didactic books
	Audio and video articles	Cassettes, videocassettes, long plays, CDs, DVDs
	Decorative articles	Sculptures, paintings and decorative crafts
<b>Indirect or complementary</b>	Reading articles	Newspapers, magazines, musical brochures, journal subscriptions
	Audio and video articles	Cassettes and taxes for video clubs
	Musical instruments and accessories	Musical instruments and accessories, such as microphones, speakers, etc.
	Courses	Courses of dance, music, drawing, design, painting and drama
	Visits to night clubs	Tickets, rent and artistic endowments.
	Household services	Internet and cable TV
	Utensils for domestic usage	TVs, stereos, dish-antennas, videos, computers, DVD, radios, etc.
	Furniture associated with cultural goods	Tables for TV sets, stereos, computers, etc.
	Others	Photography services (except for family ceremonies), costumes for carnival

**Source:** Households Budget Survey of 2008/2009

The variables associated with time allocation, which were selected from the NHSS are shown in table 2. These are all the available variables in this database related to this topic.

Table 2 – Variables for time allocation from the National Household Sample Survey of 2008 and 2009

Variables	Categories
Time allocated working per week	Less than 35 hours; from 35 to 40; from 40 to 45; from 45 to 50; 50 and above.
Time allocated doing domestic chores per week	Less than 7 hours; from 7 to 14; from 14 to 21; from 21 to 28; 28 and above.
Time allocated commuting	Less than ½ hour; from ½ to 1; from 1 to 2; 2 and above.

**Source:** National Household Sample Survey of 2008 and 2009

We also selected some variables from both databases that are related to time allocation and expenditure in cultural goods and services, which are shown in table 3. We selected the variable gender, as women tend to consume more cultural activities, also because these activities are a greater part of their socialization processes (ATECA-AMESTOY, 2008.). Age is another variable that might be related to the consumption of culture as young individuals may be more prone to this type of goods and services. Small children in the household tend to inhibit the parents of going out, especially at night (RINGSTAD and LOYLAND, 2006; PAGLIOTO and MACHADO, 2012), being 14 an age that represent a greater autonomy for kids. Schooling levels, as well as income strata, are among the main determinants of cultural consumption. As both variables are highly correlated, we choose to include the first one in our analysis. Education is also more directly related to human capital building, which is associated with cultural habits, as described in Stigler and Becker (1977). Brazil is a highly heterogeneous country, therefore, we also included dummies indicating the individual’s macroregion of residence. Finally, individuals who work might have less available time and more opportunity costs than those who are unemployed or retired.



Table 3 – Variables for household head from the Households Budget Survey 2008/2009 and the National Household Sample Survey of 2008 and 2009

Variables	Categories
Gender	Male or female
Age	25 to 35; 36 to 45; 46 to 55; 56 and over
Children	No children; at least one child above 14 years old; all children below 14.
Schooling level	Less than 8 years; from 8 to 11; high school; more than high school.
Place of residence	Metropolitan Areas from the North or Northeast regions; from the Southeast Region; or from the South Region or Federal district
Working condition	Employed; Unemployed or retired

**Source:** National Household Sample Survey of 2008 and 2009

#### **IV. 3 – Homogenous groups and Cluster analysis**

These two databases differ in sampling and hence cannot be directly linked. Therefore, we built homogenous groups with the intention of linking the two databases. These groups were based on the household head attributes. The variables utilized are those shown in table 3: sex (two categories), age (four age groups), education level (4 categories), place of residence (3), employment status (2), and presence of children in the household by age (3). Using these variables, we obtained 576 homogenous groups. Those that had less than 50 observations were dropped from the analysis due to small sample problems, and we ended with 470 groups. For instance, one of the homogenous groups is composed of household heads who were male, aged between 25 and 34, with less than eight years of formal education, who lived in the Northeast or North regions, who are employed, and living in a household with no children.

These homogenous groups were the analytical units of analysis. We applied the *k-means* method in the clusters analysis with different values for the a priori defined number of clusters. Due to empirical results, we choose the study with four clusters. These four clusters grouped the homogenous groups, regarding similarities and differences due to the variables of cultural consumption and time allocation. This procedure enabled us to determine sets of homogenous groups, classifying them in different typologies concerning these variables. These sets were them related descriptively to explanatory variables.

## **V- Results**

Initially, section five presents some descriptive statistics, and then the results for the cluster analysis.

### **V.1 – Descriptive statistics**

We analyzed household expenditures profiles in the Brazilian metropolitan areas using NBS of 2008/2009, and observed that only 2.8% of the household budget was spent on cultural goods and services (Most expenditures in urban Brazil are associated with food in the household, household's rent, taxes and services, and vehicles and transportation). Moreover, the expenditure distribution was highly heterogeneous. Many households, 44.6% of the total did not spend any part of their budget on culture, while 25% spent over one thousand dollars annually.

Table 4 compares the characteristics of the household head for households with no cultural expenditure with those that had a positive value. First, notice that the differences are not remarkable. The group of households with positive expenditures had larger proportion of household heads who were male, younger, without children or with small children in the household, with higher levels of formal education, living in a Metropolitan Area in the North, Northeast and Southeast regions, and working. However, notice that the groups showed much more similarities than differences.

**Table 4 – Household head characteristics by cultural expenditure**

	<b>Zero expenditure</b>	<b>Positive expenditure</b>	<b>All</b>
<b>Gender</b>			
Male	65.2	68.7	65.4
Female	34.8	31.3	34.6
<b>Age</b>			
From 25 to 35	21.8	24.5	21.9
From 36 to 45	24.6	23.5	24.5
From 46 to 55	23.0	25.2	23.1
56 and over	30.7	26.8	30.5
<b>Children in the household</b>			
No children	32.9	34.1	33.0
All below 14	23.4	25.7	23.5
At least one above 14	43.7	40.2	43.6
<b>Schooling level</b>			
Less than 8 years	47.0	39.4	46.6
From 8 to 10	15.1	18.1	15.2
High school	21.7	25.4	21.9
More than high school	16.2	17.1	16.3
<b>Place of residence</b>			
North and Northeast regions	21.0	22.0	21.1
Southeast regions	62.5	63.8	62.5
South region and Federal District	16.5	14.2	16.4
<b>Working condition</b>			
Employed	75.0	77.9	75.2
Unemployed or retired	25.0	22.1	24.8

**Source:** National Budget Survey of 2008/2009

In order to describe a more detailed analysis, table 5 shows data for quartiles of cultural goods and services expenditures. Some differences that were not very clear in the previous table are highlighted here. First, the mean values for expenditure in the quartiles are highly heterogeneous: zero, 63, 398 and 2398 *reais* (respectively around 0, 27, 172 and 1034 US dollars). The households in the fourth quartile had larger proportions of household heads who were male, aged between 36 to 55, with larger children in the household, with higher levels of formal education, living in a Metropolitan Area in the Southeast region, and working.

**Table 5 – Household head characteristics by quartile of cultural expenditure**

	1° quartile	2° quartile	3° quartile	4° quartile	All
<b>Gender</b>					
Male	62.12	66.36	65.93	70.42	65.38
Female	37.88	33.64	34.07	29.58	34.62
<b>Age</b>					
From 25 to 35	20.13	29.37	26.8	18.55	21.91
From 36 to 45	20.53	25.41	27.13	28.76	24.5
From 46 to 55	22.16	20.52	22.41	25.84	23.05
56 and over	37.18	24.7	23.66	26.84	30.54
<b>Children in the household</b>					
No children	38.03	28.65	29.55	28.38	32.99
All below 14	21.31	25.89	26.62	23.63	23.47
At least one above 14	40.66	45.47	43.83	47.99	43.55
<b>Schooling level</b>					
Less than 8 years	52.86	58.15	50.91	28.75	46.64
From 8 to 10	15.52	17.51	17.17	12.16	15.2
High school	21.29	17.32	22.43	23.42	21.89
More than high school	10.33	7.02	9.49	35.67	16.28
<b>Place of residence</b>					
North and Northeast regions	20.62	30.71	27.39	13.49	21.08
Southeast regions	63.01	56.35	55.63	69.88	62.52
South region and Federal District	16.37	12.94	16.98	16.63	16.4
<b>Working condition</b>					
Employed	69.4	78.84	79.61	80.21	75.17
Unemployed or retired	30.6	21.16	20.39	19.79	24.83
Mean value for the quartiles	0	62.69	397.55	2397.82	702.03
Upper value for the quartiles	0	107	842.93	9932.8	-

**Source:** National Budget Survey of 2008/2009

Using the NHSS database, we also discussed time allocation on working, doing domestic chores and commuting. The results are shown respectively in the following three tables.

Table 6 shows that males tended to spend grater time working, and the same happened with individuals aged 25 to 45, with those with small children in the household, with 8 to 11 years of formal education, and living in the Southeast region.

**Table 6 - Time allocated working for household heads**

	<b>Below 35</b>	<b>From 36 to 40</b>	<b>From 40 to 45</b>	<b>From 45 to 50</b>	<b>50 and above</b>
<b>Gender</b>					
Male	41.32	68.81	77.07	76.89	76.75
Female	58.68	31.19	22.93	23.11	23.25
<b>Age</b>					
From 25 to 35	18.04	26.19	32.41	28.76	26.66
From 36 to 45	24.61	30.53	33.76	33.07	31.94
From 46 to 55	26.61	28.15	24.02	25.39	27
56 and over	30.74	15.13	9.82	12.78	14.4
<b>Children in the household</b>					
No children	32.68	29.75	26.3	27.21	27.16
All below 14	22.02	30.27	37.16	35.01	32.96
At least one above 14	45.3	39.98	36.54	37.79	39.88
<b>Schooling level</b>					
Less than 8 years	43.04	28.32	33.75	38.43	36.09
From 8 to 10	13.38	14.75	17.79	18.67	17.62
High school	26.06	35.28	36.9	32.36	31.2
More than high school	17.51	21.65	11.56	10.55	15.09
<b>Place of residence</b>					
North and Northeast regions	26.08	17.97	17.31	20.96	22.74
Southeast regions	56.67	62.86	63.32	64.29	61.49
South region and Federal District	17.25	19.17	19.38	14.74	15.77
<b>Working condition</b>					
Employed	100	100	100	100	100
Unemployed or retired	0	0	0	0	0

**Source:** National Household Sample Survey of 2008 and 2009

Table 7 shows a different profile for those who spent more time with domestic chores, with overrepresentation of females, younger individuals, with small children in the household, with 8 to 11 years of formal education, and living in the Southeast region.

**Table 7 - Time allocated with domestic chores for household heads**

	<b>Below 7</b>	<b>From 7 to 14</b>	<b>From 14 to 21</b>	<b>From 21 to 28</b>	<b>28 and above</b>
<b>Gender</b>					
Male	84.51	42.16	23.61	9.41	16.22
Female	15.49	57.84	76.39	90.59	83.78
<b>Age</b>					
From 25 to 35	22.45	12.3	17.14	16.72	20.7
From 36 to 45	25.47	21.24	22.75	24.47	30.48
From 46 to 55	23.46	20.6	26.17	25.96	28.49
56 and over	28.63	45.86	33.94	32.85	20.33
<b>Children in the household</b>					
No children	30.59	44.07	35.98	23.2	22.46
All below 14	27.95	12.1	19.78	24.1	28.67
At least one above 14	41.46	43.83	44.25	52.7	48.87
<b>Schooling level</b>					
Less than 8 years	38.88	54.15	51.99	52.07	40.97
From 8 to 10	14.89	7.66	13.81	12.54	17.45
High school	29.44	21.3	20.17	24.44	32.7
More than high school	16.8	16.89	14.02	10.95	8.88
<b>Place of residence</b>					
North and Northeast regions	20.25	25.68	27.25	30.75	22.76
Southeast regions	63.39	56.71	52.79	52.13	62.57
South region and Federal District	16.36	17.62	19.96	17.12	14.68
<b>Working condition</b>					
Employed	78.91	74.67	66.02	55.92	35.17
Unemployed or retired	21.09	25.33	33.98	44.08	64.83

**Source:** National Household Sample Survey of 2008 and 2009

Table 8 shows as its main differences that males, individuals with lower levels of formal education, who lived in the Southeast region spent more time commuting.

**Table 8 - Time commuting for household heads**

	<b>Below ½ hour</b>	<b>From 1/2 to 1 hour</b>	<b>From 1 to 2 hours</b>	<b>More than 2 hours</b>
<b>Gender</b>				
Male	69.11	71.27	70.53	73.48
Female	30.89	28.73	29.47	26.52
<b>Age</b>				
From 25 to 35	27.93	28.01	29.81	25.74
From 36 to 45	30.32	32.8	32.38	33.02
From 46 to 55	26.01	26.57	26.03	28.02
56 and over	15.74	12.62	11.78	13.21
<b>Children in the household</b>				
No children	29.84	27.17	26.42	23.28
All below 14	31.55	33.41	34.29	33.19
At least one above 14	38.61	39.42	39.29	43.53
<b>Schooling level</b>				
Less than 8 years	33.47	31.08	34.11	38.6
From 8 to 10	15.76	16.44	17.41	20.01
High school	32.24	35.67	35.98	30.77
More than high school	18.53	16.81	12.51	10.62
<b>Place of residence</b>				
North and Northeast regions	22.6	19.38	14.26	10.27
Southeast regions	56.43	64.87	76.53	83.53
South region and Federal District	20.97	15.75	9.21	6.2
<b>Working condition</b>				
Employed	100.0	100.0	100.0	100.0
Unemployed or retired	0.0	0.0	0.0	0.0

**Source:** National Household Sample Survey of 2008 and 2009

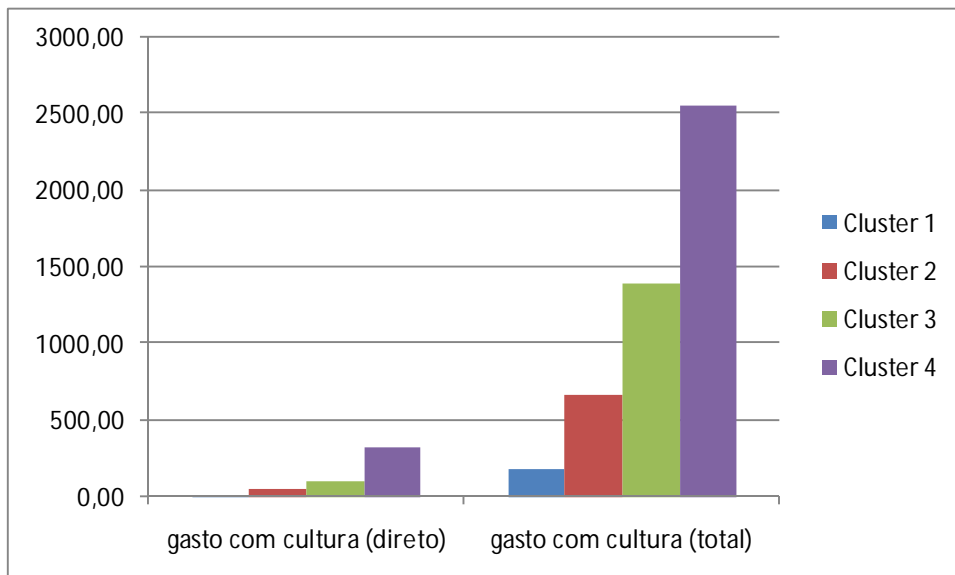
## V. II – Clusters analysis

The 470 homogenous groups were then categorized in one of four clusters, each with its characteristics. Each cluster was characterized by a particular combination of direct and indirect cultural expenditures and time allocated for domestic chores and working. Graphs 1 and 2 show how these clusters were typified.

Graph 1 shows that there was a clear distinction among the clusters regarding cultural expenditures. Cluster 1 with lower levels, and cluster 4 with higher.

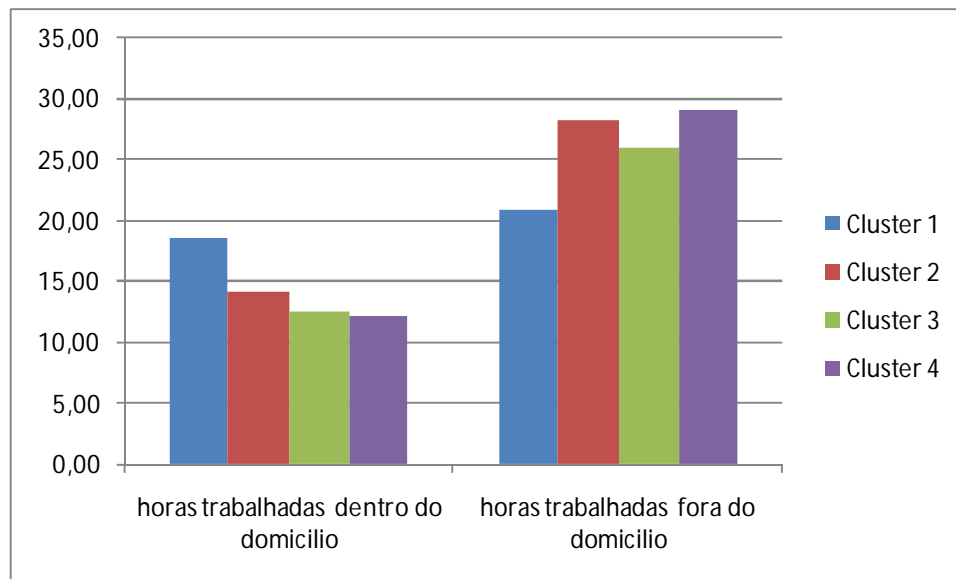
Graph 2 presents the characteristics of the clusters for time allocation. Clusters 2, 3 and 4 did not differ much, and had higher values for time allocated working and lower numbers for domestic chores.

Graph 1 – Cluster distribution according to cultural direct and total expenditure





Graph 2 – Cluster distribution according to time allocation



The distribution of homogenous groups among the clusters was uneven. Cluster 1, which represented the households with low levels of cultural expenditures, larger amount of time allocated to domestic chores, and fewer hours working, characterized 228 groups, or 49% of the total. That is, the features of cluster 1 characterized close to half of all homogenous groups, which could be denominated “household heads with low participation in the labor market and low levels of cultural expenditure”.

Cluster 2, with household heads who had slightly larger expenditure on culture, characterized 28% of all homogenous groups. Given these characteristics, we named the cluster as “household heads with intensive working schedules and low levels of cultural expenditures”.

Clusters 3 and 4, with larger cultural expenditures, characterized respectively 17% and 6% of all homogenous groups. We named these groups respectively “household heads who consume culture and spend slightly less hours working” and “household heads with high participation in the labor market and high expenditures in culture”.

Table 9 describes these clusters similarly as was done in the previous tables for other variables. The table shows that cluster 1 is overrepresented by women, young individuals, individuals without children or with small children, with low educational level, who lived in the North or Northeast regions, and unemployed/retired. This group, although many might have enough time to consume culture, they lack monetary means to do so.

For the second cluster, it is observed an overrepresentation of men, individuals aged 36 to 45, with young children, with high school level, who lived in the Southeast or South regions, or in the Federal District. Probably, this group has an income level above the previous one, however, due to the presence of small children in the household, they lack time to consume culture.

The third cluster is composed, mainly, by men, individuals aged 46 and over, with at least one child above 14 year old, with higher levels of formal education, who lived in the South or Southeast regions, or in the Federal District, but who not necessary participated intensively in the labor market.

Cluster four has a majority of men, older individuals and, also due to this fact, with older children. Moreover, they had higher levels of formal education, lived in the Southeast region, and worked. This profile represents those who had higher income, and therefore had the monetary means to consume culture.

**Table 9 – Household heads distribution among the clusters**

	Cluster 1	Cluster 2	Cluster 3	Cluster 4
<b>Gender</b>				
Male	42.1	56.9	61	56.7
Female	57.9	43.1	39	43.3
<b>Age</b>				
From 25 to 35	25.9	23.9	13.4	13.3
From 36 to 45	24.1	31.5	26.8	10
From 46 to 55	27.6	23.9	30.5	36.7
56 and over	22.4	20.8	29.3	40
<b>Children in the household</b>				
No children	38.2	33.9	35.4	30
All below 14	29.8	29.2	26.8	23.3
At least one above 14	32	36.9	37.8	46.7
<b>Schooling level</b>				
Less than 8 years	37.7	27.7	11	3.3
From 8 to 10	32.9	22.3	14.6	10
High school	24.1	34.6	24.4	6.7
More than high school	5.3	15.4	50	80
<b>Place of residence</b>				
North and Northeast regions	45.2	21.5	25.6	26.7
Southeast regions	25.4	40.8	37.8	50
South region and Federal District	29.4	37.7	36.6	23.3
<b>Working condition</b>				
Employed	50	64.6	62.2	70
Unemployed or retired	50	35.4	37.8	30

**Sources:** National Household Sample Survey of 2008 and 2009 and National Budget Survey of 2008/2009

## VI – Final commentaries and conclusion

We observed associations between expenditure and time allocation. Individuals who allocated less than 30 hours weekly to the three activities mentioned in tables 6, 7 and 8 spent on cultural products and services a mean value of 752.87 *reais*. On the other hand, those who allocated more than 60 hours to these three activities spent less, 425.14 *reais*. Those who allocated between 40 and 50 hours spent much more than all groups, with a mean value of 1042.17 *reais*.

The results suggest that time availability is positively associated with cultural consumption, as these activities are time intensive. However, besides the availability of time, schooling levels and labor market participation are decisive determinants of expenditure in cultural services. Therefore, individuals who work extended hours might have money, but may lack the time necessary to consume culture services and products. In addition, educational level was also positively correlated with cultural expenditures, although the relationship with income level was not so straightforward.

Given these results, the low levels of culture consumption in Brazil are possibly more related to the lack of habit, as suggested by Fundação de Perseu Abramo (2013), than specifically with the lack of time or monetary resources. These results suggest that the model proposed by Stigler and Becker (1977) might be more appropriate to describe the Brazilian reality than the model suggested by Becker (1965).

Thus, public policies that promote educational activities in museums or cultural centers, especially those focusing young individuals from low income families, might have a remarkable multiplying effect on culture consumption both for children and their parents.

Other policies might have similar effects, such as the existing one that facilitates the consumption of culture by the working class. Individuals working with formal documents, who earn less than five Brazilian Minimum Salaries, are entitled to receive 50 reais from the government to invest in cultural activities. This policy enhances their access for courses of arts, audiovisual, circus, dance, photography, music, drama and literature. Moreover, the policy increases the contact of this class with crafts, cinema, documentaries, movies, musicals, sculpture, performances, shows, theaters, circus, etc. This type of policy could be effective as they have as focus those classified in cluster one and two in our analysis, who have very low levels of culture consumption.

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