

## Family, life cycle and consumption of services: the Spanish case

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This article presents an analysis of service consumption patterns in Spanish homes, based on different stages in the life cycle of a family, using cross-section data from the Encuesta Continua de Presupuestos Familiares (Ongoing Survey of Family Budgets). The study's main objective consists of establishing a taxonomy of services consumed by the home by estimating income elasticity. The results obtained classify services as inferior, necessary and luxury and also point the public sector in the direction of some economic policy measures involving a more balanced distribution of income.

**Keywords:** services sector; family consumption; life cycle; income elasticity; survey of family budgets; Spain; 1998–2005; public policies

### Introduction and approach

A family goes through different stages in its life cycle, which modify its composition and socio-economic characteristics and, therefore, its requirements for goods and services. As a result, every type of family generates different consumption behaviours. However, these stages are difficult to define and change over time. Family types are becoming more and more diverse and the stages undergo considerable changes. Consequently, phases are delayed, altered, interrupted and start again. In any event, the life cycle has become one of the main determining factors of families' expenditure behaviour (Mañas, Gabaldón, & Cuadrado, 2002a; Mañas, Gabaldón, & Rubalcaba, 2002b).

Following the fundamentals of Engel's law, increases in a family's income level go hand in hand with changes in consumption, which means that expenditure on services, especially some specific ones, starts to rise after a certain level of income has been reached (Cuadrado, 2003)<sup>1</sup>.

One of the theoretical models of consumption reference is the life-cycle model (Ando & Modigliani, 1957, 1963; Modigliani, 1986; Modigliani & Brumberg, 1954), according to which consumers plan their consumption in such a way that the fraction of total resources consumed in any given year increases as the individual ages. Despite this, data<sup>2</sup> indicate that the family unit's income first increases and then decreases as its age rises. Furthermore, the size of the family, given by the number of members forming the family unit, follows the same general pattern of behaviour, although this is more noticeable than that of the income function.

Later contributions<sup>3</sup> have proved that the family life cycle is a discriminatory factor of consumption and expenditure on different types of goods and services, although changes in the family configuration, such as marriage, birth of children, age etc., undoubtedly have

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an effect on the level of income and expenditure that takes place in every stage of the life cycle in families.

The international economic literature is full of studies in which micro-economic data are used to check whether the life-cycle model is applicable. The most recent use cohort analyses to determine the evolution of consumption patterns in homes. However, international evidence is not conclusive, coming across sources of rejection.<sup>4</sup> In the Spanish case, empirical evidence is not conclusive either, with some studies providing support for the applicability of the model and others rejecting this.<sup>5</sup>

Within the aforementioned context, the main objective of this study is to analyse the influence of the life cycle on the consumption of services in a family in order to detect its distinctive patterns in Spanish homes and to establish a taxonomy among luxury, necessary and inferior services. The study variables used for this are: composition of the home, age of the chief income earner<sup>6</sup> and the level of family income. These variables enable us to examine the income elasticities of family demand and to propose classification of services. However, accessing the different services is linked with income distribution, which affects individuals and, therefore, families. Consequently, it is the state that has to facilitate this access by implementing economic policies.

The article has been organised into three parts or sections, besides introduction, which includes the approach to the study and the theoretical framework of reference. The second section describes the source of the data studied, the model proposed and the methodology used. Next, the empirical results are shown in the third section. And, finally, the main conclusions on the basis of the results obtained are presented in the fourth section.

### Data source, model and methodology

The database used in this study is Encuesta Continua de Presupuestos Familiares (ECPF – Ongoing Survey of Family Budgets) prepared by the Instituto Nacional de Estadística (Spanish Statistical Office). The ECPF is a representative quarterly survey of the Spanish population. It was started in the third quarter of 1997. The microdata processed in drafting this study correspond to 1998 and 2005.<sup>7</sup>

A significant limitation when using the microdata from the family budget surveys is to isolate what is the expenditure on goods and what is the expenditure on services in some items. This is an extremely important matter, since it may condition the quantitative value attributable to the consumption of family services. As a result, there are some expenditure headings where assigning the amount to either the goods or services section is complex, due to the high level of aggregation. This happens, for example, with some items in the food group. This expenditure is added to the goods section, leading to an underestimate of the services that are actually consumed by homes.

We estimated the income elasticities of the demand for services by Spanish families on the basis of a linear model in double logarithms:<sup>8</sup>

$$\log g_i = b_{0i} + b_{1i} \log Y, \quad i = 1, \dots, 16,$$

where  $g_i$  is the annual expenditure made in the services group  $i$ ,  $Y$  is the total income the home earns in the period and  $b_{1i}$  is the income elasticity of demand for the services group  $i$ ; in other words:

$$b_{1i} = \frac{\partial(\log g_i)}{\partial(\log Y)}.$$

Initially, a least-squares linear regression analysis was performed for every one of the groups of services and later new characteristics of the homes were introduced pursuant to

the life-cycle theory: age of the chief income earner and composition of the home (with children and without children), with the values of income elasticity of demand calculated for each case.

The income elasticity of demand enables us to examine the level of variation that occurs in the consumption of every one of the groups of services as a consequence of a variation in consumers' income. In this respect, a classification of services can be established depending on how the quantity consumed alters when income changes. Pursuant to the economic literature (Mankiw, 2007), a normal service is one whose income elasticity of demand is positive, whereas a service is inferior when its income elasticity of demand is negative. However, going into even further detail in the analysis of demand sensitivity to income alterations, a luxury service has a higher income elasticity of demand than one, whereas a necessary service, and not a luxury one, has a lower income elasticity of demand than one. We gather from this that the participation of luxury services in consumers' expenditure increases with income. On the contrary, the participation of basic necessity services decreases with income. As a result, homes located in the lowest income bands spend more of their income on basic necessity services. However, when the demand for a service increases when income decreases, that service is considered to be inferior. Therefore, a taxonomy of services can be established based on the value of the income elasticity of demand.

## **Results**

### ***Some features of family consumption of services***

The aim was to perform an approximation of the current situation of family consumption in our country. We did this by using an analysis of its evolution as a basis in the period 1998–2005. Then we tried to show the influence a series of variables have, which are extremely important in the life-cycle model, on patterns of family expenditure on services according to the data of the ECPF in 2005 (Table 1).

In general and for the period analysed, the data show an upward trend of consumption of services by Spanish homes. Therefore, expenditure on services compared with total expenditure on goods and services shows an increase of around 5.3%.

By groups, and with regard to the total expenditure on services, the headings formed by services and repairs for the home, property services, restaurants, cafes and bars, and other services and insurance are around two-thirds of the home budget for services. Worth noting is the progress made by mail and communications, teaching, leisure and culture and restaurants. On the contrary, the largest falls in expenditure are on services and repairs for the home, and, to a lesser extent, medical services and property services. However, this last expenditure group stands out above all the rest for being the one with the most importance in the home budget in 2005 as a result of the property boom in recent years in our country, facilitated by mortgages becoming cheaper.

### **Patterns of expenditure on services pursuant to different variables connected with the life cycle**

#### ***Composition of the home***

As far as the mean expenditure on services is concerned, pursuant to the different types of homes that are taken into consideration in the ECPF, the 2005 data indicate that homes

Table 1. Mean consumption per home on services (1998–2005).

| Expenditure on groups of services | Mean quarterly amount per home (€) |          | % on total expenditure |              | % on total services |        |
|-----------------------------------|------------------------------------|----------|------------------------|--------------|---------------------|--------|
|                                   | 2Q98                               | 2Q05     | 2Q98                   | 2Q05         | 2Q98                | 2Q05   |
| Services and repairs for the home | 158.02                             | 255.08   | 5.36                   | 4.12         | 19.64               | 12.64  |
| Property services                 | 141.77                             | 319.82   | 4.81                   | 5.16         | 17.62               | 15.84  |
| Domestic service                  | 29.64                              | 57.36    | 1.01                   | 0.93         | 3.68                | 2.84   |
| Medical services                  | 44.52                              | 62.74    | 1.51                   | 1.01         | 5.53                | 3.11   |
| Personal transport                | 33.16                              | 86.09    | 1.12                   | 1.39         | 4.12                | 4.26   |
| Public transport                  | 25.93                              | 51.02    | 0.88                   | 0.82         | 3.22                | 2.53   |
| Mail and communications           | 3.40                               | 89.99    | 0.12                   | 1.45         | 0.42                | 4.46   |
| Leisure and culture services      | 56.80                              | 179.46   | 1.93                   | 2.90         | 7.06                | 8.89   |
| Nursery school services           | 0.52                               | 15.70    | 0.02                   | 0.25         | 0.06                | 0.78   |
| Teaching services                 | 6.84                               | 56.29    | 0.23                   | 0.91         | 0.85                | 2.79   |
| Personal care services            | 29.28                              | 71.95    | 0.99                   | 1.16         | 3.64                | 3.56   |
| Restaurants                       | 78.74                              | 232.52   | 2.67                   | 3.75         | 9.79                | 11.52  |
| Cafes and bars                    | 111.11                             | 291.42   | 3.77                   | 4.71         | 13.81               | 14.43  |
| Hotels                            | 6.89                               | 29.83    | 0.23                   | 0.48         | 0.86                | 1.48   |
| Other services and insurance      | 77.84                              | 219.57   | 2.64                   | 3.54         | 9.68                | 10.88  |
| Total services                    | 804.47                             | 2,018.85 | <b>27.28</b>           | <b>32.60</b> | 100.00              | 100.00 |
| Total goods and services          | 2948.62                            | 6,193.01 | 100.00                 | 100.00       |                     |        |

Source: Own based on data from the ECPF surveys of 1998 and 2005.

formed by a couple with two children are the ones that spend the most on services, in relative terms, out of the total expenditure, since 34.5% of the home budget is expenditure on services consumption, whereas homes formed by a single person aged 65 or older are the ones that spend the least on services, specifically 28% of the total expenditure (Table A1).

One aspect that proves the influence children have on expenditure is shown in homes formed by couples with children, since they are the ones whose mean expenditure is greater, in relative figures, under headings such as mail and communications, nursery school, teaching, restaurants, cafes and bars, hotels, other services and insurance.

In the case of homes without children, with the exception of those formed by a couple with one child, property services is the branch with the most expenditure out of the total.<sup>9</sup>

### *Age of the chief income earner*

In connection with the mean expenditure per home on services according to the age of the chief income earner, the 2005 microdata indicate that in homes where the chief income earner is under 35 years old, 34.1% spend the most on services out of their total expenditure, whereas in those homes where the chief income earner is over 64 years old, the percentage is five points less, in other words 29.1%, which is logical given that 65 marks the official retirement age in Spain (Table A2).

By expenditure groups, income earners who are aged between 35 and 64 are the ones that spend, in absolute terms, the most in cafes and bars, restaurants, services and repairs for the home, insurance, leisure and culture, personal transport, teaching, personal care, medical services, public transport, hotels and other services, in that order. Homes with younger income earners are the ones that spend more on property services, mail and communications and nursery school, whereas homes with earners over 64 years old are the ones that spend the most on domestic service.

The great importance of services connected with property is highlighted again, since they are the most important item in the home's service budget both for the homes with younger income earners and for homes where the chief income earner is older.

### *Level of income*

A key variable for analysing expenditure on consumption is the level of families' income. We have done this by dividing the homes forming the ECPF into four groups based on their income in the period. As a result, we have obtained the following segments: low income, medium-low and medium income, medium-high income and high income.

The percentage of mean expenditure per home on services out of the total mean expenditure has been calculated on the basis of the income quartile for the 2005 data. In principle, we have discovered that the higher the level of income in the home, the larger the proportion of expenditure on service consumption. Consequently, in the case of homes with high incomes, the percentage of expenditure on services in connection with the total expenditure is 11 percentage points higher than that of homes located in the first quartile (Table 2).

After performing a detailed study of the percentage structure of expenditure by groups of services, pursuant to the income quartile, we can see that property services, repairs for the home, cafes and bars, restaurants, leisure and culture and insurance are the most important expenditure headings in relative terms for all the segments.

Groups of expenditure on services that increase gradually as income levels go up are: leisure and culture, restaurants, hotels and insurance.

Once again, the emphasis has to be placed on services related to property,<sup>10</sup> which, except in the case of homes with a medium-high income, is the largest item in percentage out of the total expenditure.

Table 2. Percentage of quarterly mean expenditure per home on services out of the total mean quarterly expenditure pursuant to the income quartile (2q2005).

| Groups                                  | First quartile | Second quartile | Third quartile | Fourth quartile |
|-----------------------------------------|----------------|-----------------|----------------|-----------------|
| Services and repairs for the home       | 5.1            | 4.2             | 4.0            | 3.5             |
| Property services                       | 5.7            | 5.0             | 4.7            | 6.4             |
| Domestic service                        | 0.7            | 0.5             | 0.7            | 2.6             |
| Medical services                        | 1.2            | 0.9             | 1.2            | 1.0             |
| Personal transport                      | 1.1            | 1.4             | 1.6            | 1.5             |
| Public transport                        | 0.8            | 0.8             | 0.8            | 1.0             |
| Mail and communications                 | 1.0            | 1.5             | 1.6            | 1.6             |
| Leisure and culture services            | 2.5            | 2.6             | 2.8            | 4.4             |
| Nursery school services                 | 0.1            | 0.2             | 0.3            | 0.3             |
| Teaching services                       | 0.3            | 0.7             | 1.2            | 1.7             |
| Personal care services                  | 1.4            | 1.1             | 1.1            | 1.1             |
| Restaurants                             | 1.7            | 3.6             | 4.5            | 4.6             |
| Cafes and bars                          | 3.2            | 4.9             | 5.1            | 4.9             |
| Hotels                                  | 0.2            | 0.4             | 0.5            | 1.0             |
| Other services                          | 0.5            | 0.5             | 0.4            | 0.7             |
| Insurance                               | 2.8            | 2.9             | 3.2            | 3.2             |
| Total expenditure on services           | 28.3           | 31.1            | 33.6           | 39.3            |
| Total expenditure on goods and services | 100.0          | 100.0           | 100.0          | 100.0           |

Source: Own based on data from the ECPF survey of 2005.

### *Income elasticity of family demand for services*

It has been established that as the income of homes rises, expenditure on some services increases in a larger proportion than on others. It would, therefore, be interesting to make an estimate of the income elasticities of demand of every one of the groups of services in 2005. The results of the estimates are shown in Table 3. Next to every elasticity value, there is the corresponding level of statistical significance, besides the determination coefficient of the adjusted model, for every branch of services.

All the groups of services show an income elasticity of demand with a positive value, which indicates that they can be considered as normal. However, there are values above, equal to and below one.

The services that record estimated values clearly higher than one, from more to less are: teaching and hotels. These *services* can be considered a *luxury*.

Nursery school services have a value equal to one, whereas the rest of the services give rise to income elasticity of demand values below one, and, therefore, they can be considered as *necessary and not luxury services*.

Having reviewed the most recent national studies<sup>11</sup> in which the income elasticity of demand is calculated on the basis of samples of data from the Survey of Family Budgets of 1990–1991, we found that the most significant results are the fact that all the services are normal products, as no negative elasticity is obtained. However, not all of them are above one. The services that are above one include: teaching, domestic service, hotels, nursery school and personal transport. On the contrary, those that do not go above one are: services and repairs for the home, medical services and mail and communications.

On an international basis, there are studies that use microdata from Surveys of Family Budgets in which income elasticities of goods and services are analysed: for eight types of products in six Australian regions (S. Selvanathan & E.A. Selvanathan, 1994) and for 11 products nationally in Turkey (Selim, 2001). In the first case, the elasticities are below one for all the regions in the groups of food and clothing and, except in one, also in property.

Table 3. Income elasticity of family demand for services (2q2005).

| Groups                            | Elasticity           | R <sup>2</sup> |
|-----------------------------------|----------------------|----------------|
| Services and repairs for the home | 0.287 (0.024)        | 0.952          |
| Property services                 | 0.386 (0.051)        | 0.901          |
| Domestic service                  | 0.845 (0.061)        | 0.882          |
| Medical services                  | 0.407 (0.015)        | 0.971          |
| Personal transport                | 0.525 (0.052)        | 0.898          |
| Public transport                  | 0.421 (0.018)        | 0.964          |
| Mail and communications           | 0.607 (0.082)        | 0.843          |
| Leisure and culture services      | 0.575 (0.007)        | 0.986          |
| Nursery school services           | 1.000 (0.115)        | 0.783          |
| Teaching services                 | <b>1.123</b> (0.018) | 0.964          |
| Personal care services            | 0.327 (0.012)        | 0.976          |
| Restaurants                       | 0.836 (0.071)        | 0.863          |
| Cafes and bars                    | 0.591 (0.071)        | 0.862          |
| Hotels                            | <b>1.108</b> (0.024) | 0.952          |
| Other services                    | 0.514 (0.042)        | 0.917          |
| Insurance                         | 0.493 (0.025)        | 0.951          |

Source: Own based on data from the ECPF survey of 2005.

The level of significance of the estimated elasticity coefficients appears in brackets. R<sup>2</sup>, determination coefficient of the adjusted model.

The elasticities corresponding to medical care and transport are always more than one, in sundry and long-lasting as well, except in two regions. In the second case, the results indicate positive income elasticity values below one in food, property and health. On the contrary, clothing, furniture, transport and communication, restaurants, sundry, culture and leisure, education and hotel have income elasticity values above one.

In our country, there is a lack of studies based on the most recent ECPF data, which go into detail on the influence of the life cycle, estimate income elasticity values and are capable of establishing a taxonomy of services consumed by Spanish families. As a result, one of the main aims of this study is to estimate the income elasticities of demand by groups of services depending on the different stages in the family life cycle, considering the variables: composition of the home, age of the chief income earner and level of income, with microdata from the 2005 ECPF. To achieve this, we have taken into account two types of compositions of the home: couples with children and couples without children, and, with regard to age, three different stages: chief income earner aged under 35, between 35 and 64 and over 64 years old. In the case of couples with children, we have differentiated four types of homes: with children aged between 0 and 5, with children aged between 6 and 11, with children aged between 12 and 17 and with children 18 and over. And for every division, four income levels: low income, medium-low and medium income, medium-high and high income, depending on the home income, and which configure as many family subcategories as there are income quartiles. Next, the mean of the income and expenditure for every group of services was calculated for every subcategory, obtaining a data matrix for every one of them, on which the model indicated in the previous section was adjusted, using the ordinary least-squares linear regression analysis.

In couples with children in which the chief income earner in the home is under 35 years old, the groups of domestic service, medical services, nursery school, restaurants, cafés and bars, hotels and other services have estimated values of income elasticity of demand higher than one, so they can be considered a *luxury service*. On the contrary, the rest of the services can be classified as *necessary*, except for public transport, which has a value below zero, so it is catalogued as an *inferior service* (Tables 4 and A3).

In the second life-cycle stage of couples with children, the one in which the chief income earner is aged between 35 and 64, the group formed by domestic service records a value above one, in other words, it can be termed a *luxury service*. However, the rest of the services can be classified as *necessary services*.

In the last life-cycle phase, in which the chief income earner is over 64 years old, all the groups of services have positive income elasticity of demand values, although the groups of domestic service, hotels and other services are above one, so they can be classified as *luxury services*.

In order to progress a little further in the study of income elasticity of family demand for services in couples with children, an analysis was performed based on the latter's age brackets (Tables 5 and A4).

In the age bracket in which the children are 0 to 5 years old, four *services* can be classified as *luxury*: domestic, restaurants, hotels and other services. The rest can be considered as *necessary services*, except for teaching services, which appear with a negative elasticity value.

In the age bracket between 6 and 11 years, the services that have higher elasticity values than one are: domestic, teaching, hotels and other services. The remaining *services* can be catalogued as *necessary*, except for insurance, which has a negative elasticity value.

Table 4. Classification of services consumed by families with children (1).

| Life-cycle stage                                                       | Inferior services | Necessary services                                                                                                                                                                                                                                | Luxury services                                                                        |
|------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Couples with children; chief income earner under 35 years old          | Public transport  | Services and repairs for the home, property, personal transport, mail and communications, leisure and culture, teaching, personal care, insurance                                                                                                 | Domestic, medical, nursery school, restaurants, cafes and bars, hotels, other services |
| Couples with children; chief income earner between 35 and 64 years old |                   | Services and repairs for the home, property, medical, personal transport, public transport, mail and communications, leisure and culture, nursery school, teaching, personal care, restaurants, cafes and bars, hotels, other services, insurance | Domestic                                                                               |
| Couples with children; chief income earner older than 64 years old     |                   | Services and repairs for the home, property, medical, personal transport, public transport, mail and communications, leisure and culture, nursery school, teaching, personal care, restaurants, cafes and bars, insurance                         | Domestic, hotels, other services                                                       |

Source: Own based on data from the ECPF survey of 2005.

When the children are between 12 and 17 years old, domestic service and other services have elasticity values higher than one. The rest of the *services* can be classified as *necessary* ones.

In homes formed by couples with children aged 18 and over, the different branches of services indicate income elasticity values above zero and *domestic service* is the only one that can be classified as *luxury*.

As far as couples without children are concerned, bearing in mind the three life-cycle stages connected with the age of the chief income earner, the group formed by teaching services is the only one that can be considered as a *luxury service* in the intermediate and final phases (Tables 6 and A5).

In the first stage, the groups of services integrated by medical services, personal transport, public transport, personal care, restaurants and cafes and bars indicate income elasticity of demand values below zero, so they can be classified as inferior. The groups formed by services and repairs for the home, property, mail and communications, leisure and culture, teaching, hotels, other services and insurance have positive income elasticity values, but below one, so they are considered as *necessary services*.

In the second stage, all the *services* can be classified as *necessary*, except teaching, which is a *luxury service*, as we have already mentioned, and other services, which have a negative income elasticity value.

In the third stage of the life cycle, all the groups of services have positive income elasticity of demand values, so they can be classified as *necessary*, with the exception of teaching, which we have already catalogued as a *luxury service*.

Table 5. Classification of services consumed by families with children (2).

| Life-cycle stage                                 | Inferior services | Necessary services                                                                                                                                                                                                                               | Luxury services                               |
|--------------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| Couples with children (from 0 to 5 years old).   | Teaching          | Services and repairs for the home, property, medical, personal transport, public transport, mail and communications, leisure and culture, nursery school, personal care, cafes and bars, insurance                                               | Domestic, restaurants, hotels, other services |
| Couples with children (from 6 to 11 years old).  | Insurance         | Services and repairs for the home, property, medical, personal transport, public transport, mail and communications, leisure and culture, nursery school, personal care, restaurants, cafes and bars                                             | Domestic, teaching, hotels, other services    |
| Couples with children (from 12 to 17 years old). |                   | Services and repairs for the home, property, medical, Personal transport, public transport, mail and communications, leisure and culture, nursery school, teaching, personal care, restaurants, cafes and bars, hotels, insurance.               | Domestic, Other services                      |
| Couples with children (aged 18 and over).        |                   | Services and repairs for the home, property, medical, personal transport, public transport mail and communications, leisure and culture, nursery school, teaching, personal care, restaurants, cafes and bars, hotels, other services, insurance | Domestic                                      |

Source: Own based on data from the ECPF survey of 2005.

## Conclusions

Firstly, the results obtained show that the family patterns of consumption of services by ages, composition of the home and income level, according to cross-section data belonging to the 2005 ECPF, follow different courses, as was to be expected pursuant to the life-cycle model.

Among the parameters that determine the life cycle, the one corresponding to children is clearly one of the most relevant. In this respect, we can observe a trend in the family consumption of services out of the total expenditure, which increases with the number of children. However, this is the case in absolute terms, but not in relative terms, since in the case of homes formed by couples with three children, this trend reverses. Secondly, the calculation of the income elasticity of demand has enabled us to establish a taxonomy of their services consumed by Spanish families.

In general, teaching and hotel services record income elasticities that are higher than one without considering the composition of the home with regard to whether there are children or not, or taking the age of the chief income earner into account, in other words, their values are not connected with the family cycle.

We have seen that domestic service is a luxury service in families with children for all life-cycle stages. This service is connected with a greater saving in the use of time and a better quality of life.

In homes formed by couples with children, regardless of the chief income earner's age, there is a series of services that are classified as necessary, such as services and repairs for

Table 6. Classification of services consumed by families without children.

| Life-cycle stage                                                           | Inferior services                                                                         | Necessary services                                                                                                                                                                                                                | Luxury services |
|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Couples without children; chief income earner under 35 years old.          | Medical, personal transport, public transport, personal care, restaurants, cafes and bars | Services and repairs for the home, property, mail and communications, leisure and culture, teaching, nursery school, hotels, other services, insurance.                                                                           |                 |
| Couples without children; chief income earner between 35 and 64 years old. | Other services                                                                            | Services and repairs for the home, property, domestic, medical, personal transport, public transport, mail and communications, leisure and culture, personal care, restaurants, cafes and bars, hotels, insurance                 | Teaching        |
| Couples without children; chief income earner older than 64 years old.     |                                                                                           | Services and repairs for the home, property, domestic, medical, personal transport, public transport, mail and communications, leisure and culture, personal care, restaurants, cafes and bars, hotels, insurance, other services | Teaching        |

Source: Own based on data from the ECPF survey of 2005.

the home, property, personal transport, mail and communications, leisure and culture, teaching, personal care and insurance.

In these homes, when the chief income earner is under 35 years old, there is a numerous set of services that are classified as luxury: domestic, medical, nursery school, restaurants, cafes and bars, hotels and other services. However, when the intermediate life-cycle stage is reached, in other words when the chief income earner is between 35 and 64 years old, all those services become necessary except for domestic service. Once the last life-cycle stage is reached, the following appear as luxury services again: domestic, hotels and other services.

As far as the life-cycle stages are concerned, taking into account different age brackets in couples with children, we can see a trend to decrease the number and type of services considered luxury ones as the age bracket the children are in progresses. In services related to leisure time, we can detect that both restaurants and hotels are affected by the presence of small children.

The classification of services consumed by families changes considerably when the homes are formed by couples without children, and two types can be established. One is integrated by those homes whose chief income earner is under 35 years old. The other is formed by those homes in which the chief income earner is aged 35 or older. In the first case, there is a set of services connected with leisure time, transport and health, which are catalogued as inferior. In the second case, all the services are necessary, except for other services, only when the chief income earner is between 35 and 64 years old, and teaching.

Thirdly, having arrived at this point, we need to point out the state's intervention by implementing public policies aimed at making it easier to access certain basic services,

such as medical ones and nursery school, for those families with children where the chief income earner is under 35 years old, and teaching in those homes formed by couples with children aged between 6 and 11 and those others integrated by couples without children from when the chief income earner is aged 35 or older. The provision of these types of services, connected with Health and Education, must be guaranteed in all the life-cycle stages by the public administration in our country, as is usual in a universal public health and education system. However, public expenditure policies on services and social provisions should be more widespread with the aim of supplementing family income in those homes where the only source of income comes from social benefits. Furthermore, as far as public expenditure policies connected with property are concerned, there should be an increase in subsidy benefits and other aid paid for by public funds, since, as we have seen, an important part of family income, in all the life-cycle phases, is allocated to property services.

Lastly, the results of this study could be taken as a reference for exploring two possible future directions of research in more depth connected with the presence of children in the home. The first aimed at trying to model fertility, education and consumption of services. It would seem logical to think that investment in human capital goes hand in hand with current expenditure, and yet profitability presents itself as a future value in other words, earnings are obtained in later stages and, therefore, there is more consumption of services in more advanced life-cycle stages. The second is aimed at establishing a new model of consumption of services by homes, bearing in mind the changes that are occurring in society: new lifestyles as a consequence of housing development processes, women joining the official workforce, demographic variations, higher levels of training, etc.

## Notes

1. This approach does, however, have some limitations, even though it has been recognised as having some explanatory power. Some research (Gershuny & Miles, 1983) has pointed out that there are changes in family behaviour with regard to expenditure on services, which lead to self-production of services, and that the level of expenditure does not even increase as much as could have been expected. In other words, it is accepted that an increase in income per inhabitant gives rise to more expenditure on services, but families' expenditure on goods also increases, and in some cases, this is faster than on services.
2. Modigliani and Ando analysed the implications of the model in detail for data from family budgets, a field in which the life-cycle model is most productive.
3. For a review of the literature, see Deaton (1992), Browning and Lusardi (1996), Attanasio (1999), and Mañas et al. (2002a, 2002b).
4. For a more in-depth examination on sources of rejection, see work by Poterba (1994), Paxson (1996), Attanasio (1998), Deaton and Paxson (2000), Börsch-Supan, (2001), Demery and Duck (2001), Gibson and Scobie (2001), Lise (2001), Fernández-Villaverde and Krueger (2002) and Halvorsen (2003).
5. For the studies that support this, see Collado (1998) and Browning and Collado (2001), and for those that reject this, see López-Salido (1993), and Cutanda (2002, 2003).
6. The national studies that estimate the family's age using the age of the chief income earner are: López-Salido (1993), García and Labeaga (1996), Labeaga and López (1996), and Mañas et al. (2002a). Other studies consider distribution by age intervals: Labeaga, López, and Mochón (2005) and Cutanda, Labeaga, and Mochón (2006).
7. The second quarterly period of both years has been used due to the fact that at the time of drafting the study, the last microdata file available was precisely the second quarter of 2005 INE (1997, 1998, 2005). The second quarter of 1998 presents 8.734 homes, while the one of 2005 has 7.978 homes. The Ongoing Survey of Family Budgets is a quarterly rotating panel design, in which an eighth of the last units are replaced in the sample every quarter. The sample presents three longitudinal files: home file, home members file and expenditure file. In order to obtain files that were

- easier to handle for the objectives of our research, since the original files do not have the same structures of rows and columns, the data went through a complicated preliminary processing.
8. The invariability of prices is accepted for processing cross-section data.
  9. This heading deserves a separate study given the importance it has in the home budget, which is why the authors of this article suggest it as a future line of research.
  10. Pursuant to data from the ECPF of 1990/91, the most expenditure on property services is made by those families in which the chief income earner is a university graduate, is middle aged, the home is formed by many members and there is a high available annual income (Colóm & Molés, 1998).
  11. There are very few recent studies in Spain that have made a detailed analysis of family consumption, exclusively services, using samples from the Survey of Family Budgets and applying the elasticity calculation (Camacho & Hernández, 2006; Hernández, 2005; Mañas, 1997).

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## Appendix

Table A1. Mean expenditure on services based on the composition of the home (2q2005).

| Groups                                   | Type 1 | Type 2 | Type 3 | Type 4 | Type 5 | Type 6 | Type 7 | Type 8 |
|------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Services and repairs for the home        | 3.91   | 5.78   | 4.61   | 4.04   | 3.79   | 3.48   | 4.26   | 4.27   |
| Property services                        | 9.08   | 7.61   | 5.82   | 4.99   | 4.21   | 3.88   | 4.82   | 5.70   |
| Domestic service                         | 1.03   | 2.69   | 0.89   | 0.70   | 0.77   | 1.10   | 1.13   | 0.91   |
| Medical service                          | 0.71   | 1.57   | 1.22   | 0.89   | 0.95   | 0.75   | 1.26   | 1.08   |
| Personal transport                       | 1.34   | 0.61   | 1.34   | 1.46   | 1.59   | 1.20   | 1.18   | 1.37   |
| Public transport                         | 1.21   | 0.90   | 0.86   | 0.59   | 0.86   | 0.96   | 0.98   | 0.77   |
| Mail and communications                  | 1.58   | 0.27   | 1.07   | 1.58   | 1.53   | 1.78   | 1.75   | 1.57   |
| Leisure and culture services             | 2.86   | 1.86   | 2.68   | 3.13   | 3.44   | 2.32   | 2.79   | 2.28   |
| Nursery school services                  | 0.00   | 0.00   | 0.00   | 0.46   | 0.39   | 0.27   | 0.09   | 0.16   |
| Teaching services                        | 0.55   | 0.00   | 0.17   | 0.74   | 1.63   | 1.67   | 0.79   | 0.49   |
| Services for personal care               | 0.94   | 1.66   | 1.36   | 1.12   | 1.03   | 0.91   | 1.26   | 1.33   |
| Restaurants                              | 3.28   | 1.30   | 3.19   | 3.76   | 4.74   | 4.24   | 3.18   | 3.10   |
| Cafes and bars                           | 3.65   | 0.97   | 3.42   | 4.68   | 5.44   | 6.06   | 5.14   | 5.33   |
| Hotels                                   | 0.47   | 0.14   | 0.29   | 0.47   | 0.71   | 0.72   | 0.31   | 0.24   |
| Other services                           | 1.05   | 0.35   | 0.43   | 0.46   | 0.48   | 0.76   | 0.70   | 0.38   |
| Insurance                                | 2.27   | 2.29   | 3.39   | 3.43   | 2.91   | 2.72   | 2.75   | 2.97   |
| Total expenditure on services            | 33.93  | 27.99  | 30.73  | 32.49  | 34.48  | 32.82  | 32.39  | 31.95  |
| Total expenditure on goods and services  | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Type 1: Single person under 65 years old |        |        |        |        |        |        |        |        |
| Type 2: Single person 65 or older        |        |        |        |        |        |        |        |        |
| Type 3: Couple without children          |        |        |        |        |        |        |        |        |
| Type 4: Couple with one child            |        |        |        |        |        |        |        |        |
| Type 5: Couple with two children         |        |        |        |        |        |        |        |        |
| Type 6: Couple with three children       |        |        |        |        |        |        |        |        |
| Type 7: One adult with children          |        |        |        |        |        |        |        |        |
| Type 8: Other type of homes              |        |        |        |        |        |        |        |        |

Source: Own based on data from the ECPF survey of 2005.

Table A2. Mean expenditure on services based on the chief income earner's age (2q2005).

| Groups                                  | Between 35 and 64 |           |               |
|-----------------------------------------|-------------------|-----------|---------------|
|                                         | <35 years old     | years old | >64 years old |
| Services and repairs for the home       | 3.78              | 3.93      | 4.88          |
| Property services                       | 7.45              | 4.65      | 6.02          |
| Domestic service                        | 0.35              | 0.84      | 1.43          |
| Medical services                        | 0.70              | 0.95      | 1.36          |
| Personal transport                      | 1.69              | 1.46      | 1.05          |
| Public transport                        | 0.84              | 0.83      | 0.80          |
| Mail and communications                 | 2.31              | 1.59      | 0.68          |
| Leisure and culture services            | 2.42              | 3.09      | 2.42          |
| Nursery school services                 | 0.75              | 0.27      | 0.02          |
| Teaching services                       | 0.57              | 1.17      | 0.16          |
| Services for personal care              | 0.86              | 1.10      | 1.49          |
| Restaurants                             | 3.94              | 4.29      | 1.87          |
| Cafes and bars                          | 4.86              | 5.01      | 3.61          |
| Hotels                                  | 0.20              | 0.60      | 0.20          |
| Other services                          | 0.57              | 0.58      | 0.26          |
| Insurance                               | 2.81              | 3.11      | 2.85          |
| Total expenditure on services           | 34.09             | 33.46     | 29.10         |
| Total expenditure on goods and services | 100.00            | 100.00    | 100.00        |

Source: Own based on data from the ECPF survey of 2005.

Table A3. Income elasticity of family demand for services couples with children.

| Groups                               | Age of chief income<br>earner <35 | $R^2$ | Age of chief income<br>earner between 35 and 64 | $R^2$ | Age of chief income<br>earner >64 | $R^2$ |
|--------------------------------------|-----------------------------------|-------|-------------------------------------------------|-------|-----------------------------------|-------|
| Services and repairs<br>for the home | 0.380 (0.032)                     | 0.936 | 0.241 (0.007)                                   | 0.986 | 0.272 (0.023)                     | 0.955 |
| Property services                    | 0.113 (0.808)                     | 0.037 | 0.455 (0.090)                                   | 0.828 | 0.754 (0.001)                     | 0.997 |
| Domestic service                     | <b>4.726</b> (0.025)              | 0.998 | <b>1.246</b> (0.062)                            | 0.879 | <b>1.001</b> (0.184)              | 0.666 |
| Medical services                     | <b>2.189</b> (0.043)              | 0.916 | 0.620 (0.005)                                   | 0.991 | 0.660 (0.030)                     | 0.941 |
| Personal transport                   | 0.165 (0.816)                     | 0.034 | 0.282 (0.204)                                   | 0.633 | 0.341 (0.036)                     | 0.929 |
| Public transport                     | -0.421 (0.515)                    | 0.236 | 0.484 (0.054)                                   | 0.894 | 0.413 (0.218)                     | 0.611 |
| Mail and<br>communications           | 0.300 (0.063)                     | 0.877 | 0.330 (0.004)                                   | 0.992 | 0.440 (0.073)                     | 0.859 |
| Leisure and culture<br>services      | 0.602 (0.141)                     | 0.738 | 0.420 (0.037)                                   | 0.928 | 0.054 (0.936)                     | 0.004 |
| Nursery school<br>services           | <b>1.499</b> (0.083)              | 0.841 | 0.542 (0.066)                                   | 0.873 | –                                 | –     |
| Teaching services                    | 0.653 (0.408)                     | 0.350 | 0.852 (0.005)                                   | 0.990 | 0.321 (0.425)                     | 0.331 |
| Personal care<br>services            | 0.692 (0.061)                     | 0.882 | 0.433 (0.049)                                   | 0.904 | 0.362 (0.046)                     | 0.910 |
| Restaurants                          | <b>1.411</b> (0.158)              | 0.709 | 0.702 (0.107)                                   | 0.797 | 0.428 (0.070)                     | 0.865 |
| Cafes and bars                       | <b>1.025</b> (0.095)              | 0.820 | 0.299 (0.028)                                   | 0.944 | 0.439 (0.155)                     | 0.714 |
| Hotels                               | <b>3.397</b> (0.105)              | 0.801 | 0.777 (0.059)                                   | 0.886 | <b>1.283</b> (0.243)              | 0.573 |
| Other services                       | <b>5.785</b> (0.107)              | 0.798 | 0.352 (0.168)                                   | 0.692 | <b>1.224</b> (0.049)              | 0.905 |
| Insurance                            | 0.535 (0.185)                     | 0.664 | 0.380 (0.004)                                   | 0.993 | 0.126 (0.535)                     | 0.216 |

Source: Own based on data from the ECPF survey of 2005.

The significance level of the estimated elasticity coefficients appears in brackets.  $R^2$ , determination coefficient of the adjusted model.

Table A4. Income elasticity of family demand for services; couples with children by age brackets.

| Groups                            | Children from 0 to 5 | $R^2$ | Children from 6 to 11 | $R^2$ | Children from 12 to 17 | $R^2$ | Children aged 18 and over | $R^2$ |
|-----------------------------------|----------------------|-------|-----------------------|-------|------------------------|-------|---------------------------|-------|
| Services and repairs for the home | 0.253 (0.006)        | 0.988 | 0.231 (0.005)         | 0.991 | 0.280 (0.003)          | 0.994 | 0.258 (0.026)             | 0.949 |
| Property services                 | 0.156 (0.510)        | 0.240 | 0.177 (0.476)         | 0.274 | 0.418 (0.149)          | 0.725 | 0.594 (0.024)             | 0.952 |
| Domestic service                  | <b>1.189</b> (0.479) | 0.272 | <b>1.590</b> (0.033)  | 0.936 | <b>1.415</b> (0.034)   | 0.933 | <b>1.067</b> (0.062)      | 0.880 |
| Medical services                  | 0.644 (0.043)        | 0.915 | 0.291 (0.090)         | 0.828 | 0.425 (0.033)          | 0.935 | 0.687 (0.003)             | 0.993 |
| Personal transport                | 0.053 (0.870)        | 0.017 | 0.164 (0.148)         | 0.726 | 0.698 (0.034)          | 0.933 | 0.312 (0.238)             | 0.581 |
| Public transport                  | 0.758 (0.379)        | 0.385 | 0.242 (0.123)         | 0.769 | 0.816 (0.011)          | 0.978 | 0.371 (0.096)             | 0.817 |
| Mail and communications           | 0.187 (0.240)        | 0.577 | 0.218 (0.292)         | 0.501 | 0.317 (0.003)          | 0.993 | 0.441 (0.013)             | 0.975 |
| Leisure and culture services      | 0.729 (0.064)        | 0.876 | 0.437 (0.131)         | 0.756 | 0.869 (0.120)          | 0.774 | 0.214 (0.591)             | 0.167 |
| Nursery school services           | 0.784 (0.054)        | 0.895 | 0.871 (0.227)         | 0.598 | —                      | —     | —                         | —     |
| Teaching services                 | −0.246 (0.640)       | 0.287 | <b>1.150</b> (0.009)  | 0.981 | 0.997 (0.036)          | 0.929 | 0.741 (0.006)             | 0.988 |
| Personal care services            | 0.466 (0.109)        | 0.794 | 0.580 (0.088)         | 0.833 | 0.546 (0.065)          | 0.874 | 0.329 (0.023)             | 0.954 |
| Restaurants                       | <b>1.468</b> (0.187) | 0.661 | 0.125 (0.140)         | 0.739 | 0.774 (0.086)          | 0.836 | 0.610 (0.042)             | 0.918 |
| Cafes and bars                    | 0.347 (0.065)        | 0.875 | 0.304 (0.087)         | 0.834 | 0.227 (0.065)          | 0.874 | 0.326 (0.043)             | 0.916 |
| Hotels                            | <b>2.849</b> (0.086) | 0.836 | <b>1.652</b> (0.107)  | 0.797 | 0.802 (0.173)          | 0.683 | 0.800 (0.022)             | 0.956 |
| Other services                    | <b>2.725</b> (0.224) | 0.602 | <b>2.037</b> (0.071)  | 0.863 | <b>1.449</b> (0.036)   | 0.929 | 0.135 (0.154)             | 0.715 |
| Insurance                         | 0.455 (0.036)        | 0.929 | −0.244 (0.464)        | 0.287 | 0.409 (0.002)          | 0.995 | 0.317 (0.004)             | 0.993 |

Source: Own based on data from the ECPF survey of 2005.

The significance level of the estimated elasticity coefficients appears in brackets.

$R^2$ , determination coefficient of the adjusted model.

Table A5. Income elasticity of family demand for services; couples without children.

| Groups                            | Age of chief income earner<br><35 | $R^2$ | Age of chief income earner between 35<br>& 64 | $R^2$ | Age of chief income earner<br>>64 | $R^2$ |
|-----------------------------------|-----------------------------------|-------|-----------------------------------------------|-------|-----------------------------------|-------|
| Services and repairs for the home | 0.329 (0.046)                     | 0.910 | 0.254 (0.041)                                 | 0.919 | 0.228 (0.080)                     | 0.846 |
| Property services                 | 0.519 (0.151)                     | 0.722 | 0.386 (0.015)                                 | 0.969 | 0.482 (0.148)                     | 0.726 |
| Domestic service                  | —                                 | —     | 0.977 (0.083)                                 | 0.841 | 0.699 (0.081)                     | 0.845 |
| Medical services                  | −0.224 (0.851)                    | 0.022 | 0.447 (0.231)                                 | 0.591 | 0.159 (0.649)                     | 0.123 |
| Personal transport                | −0.350 (0.568)                    | 0.187 | 0.366 (0.001)                                 | 0.997 | 0.345 (0.181)                     | 0.671 |
| Public transport                  | −0.693 (0.382)                    | 0.382 | 0.474 (0.142)                                 | 0.737 | 0.016 (0.947)                     | 0.003 |
| Mail and communications           | 0.105 (0.036)                     | 0.929 | 0.386 (0.238)                                 | 0.581 | 0.522 (0.218)                     | 0.612 |
| Leisure and culture services      | 0.754 (0.210)                     | 0.624 | 0.599 (0.006)                                 | 0.988 | 0.411 (0.174)                     | 0.682 |
| Nursery school services           | —                                 | —     | —                                             | —     | —                                 | —     |
| Teaching services                 | 0.603 (0.882)                     | 0.034 | <b>1.741</b> (0.014)                          | 0.972 | <b>2.056</b> (0.279)              | 0.820 |
| Personal care services            | −0.076 (0.843)                    | 0.025 | 0.334 (0.037)                                 | 0.927 | 0.207 (0.219)                     | 0.610 |
| Restaurants                       | −0.131 (0.846)                    | 0.024 | 0.735 (0.150)                                 | 0.722 | 0.306 (0.396)                     | 0.365 |
| Cafes and bars                    | −0.333 (0.345)                    | 0.429 | 0.629 (0.002)                                 | 0.997 | 0.390 (0.059)                     | 0.885 |
| Hotels                            | 0.476 (0.642)                     | 0.285 | 0.561 (0.224)                                 | 0.603 | 0.425 (0.203)                     | 0.636 |
| Other services                    | 0.181 (0.712)                     | 0.083 | −0.353 (0.525)                                | 0.225 | 0.389 (0.274)                     | 0.527 |
| Insurance                         | 0.448 (0.260)                     | 0.548 | 0.394 (0.064)                                 | 0.876 | 0.309 (0.128)                     | 0.760 |

Source: Own based on data from the ECPF survey of 2005

The significance level of the estimated elasticity coefficients appears in brackets.

$R^2$ , determination coefficient of the adjusted model.

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