# Female labor force participation and household expenditure patterns*

**CÂNDIDA SOFIA MACHADO**

*ABSTRACT: Surprisingly for a Southern European country, female participation in the labor market increased very sharply in Portugal from the 1960s onwards, such that nowadays the country has one of the highest female activity rates in the European Union, after Scandinavia, the UK and the Netherlands. This paper investigates the impact of female labor force participation on the consumption behavior of Portuguese households, focusing on the following expenses household services, personal services, food away from home, childcare, culture, and travel for tourism. It relies on micro data on individuals and their households. Estimation of Tobit models indicates that most of the services under analysis can be considered luxury items. Moreover, households with an employed wife allocate a higher proportion of their budget to culture, travel, childcare, food away from home, and domestic services, than do households where the woman does not participate in the labor force.*

**Key words:** Consumption, Services, Female Employment

## TÍTULO: Participação feminina no emprego e padrões familiares de despesa

*RESUMO: Em Portugal, a participação feminina no mercado de trabalho aumentou significativamente desde a década de 60, de tal modo que o país apresenta actualmente uma das mais elevadas taxas de actividade femininas na União Europeia, atrás da Escandinávia, do Reino Unido e dos Países Baixos. Este trabalho investiga o impacto da participação feminina na força de trabalho sobre o comportamento de consumo das famílias portuguesas, incidindo sobre as seguintes despesas: serviços domésticos, serviços pessoais; alimentação fora de casa; cuidados infantis; cultura e viagens para fins turísticos. A análise empírica baseia-se na utilização de dados microeconómicos sobre os indivíduos e as suas famílias. A estimação de modelos Tobit indica que a generalidade dos serviços em análise pode ser classificada como itens de luxo. Adicionalmente, as famílias nas quais a esposa está empregada alocam uma maior proporção do seu orçamento em cultura, viagens, cuidados infantis, alimentação fora de casa e serviços domésticos, comparativamente com as famílias nas quais a mulher não participa na força de trabalho.*

**Palavras-chave:** Consumo, Serviços, Emprego Feminino

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## INTRODUCTION

Female labor force participation has increased sharply over the last decades and predictions unanimously indicate that this trend will continue, though at a slower pace, over the next years.

Rising female participation has brought about changes at the economic, social and family levels. Employment has enabled women to achieve financial independence and changed bargaining power within the household. The reduction in fertility rates amongst developed countries, that has resulted in population aging, has been seen both as a consequence and a cause of rising female employment, since it allows women to work for the market at a lower opportunity cost (as mothers are often responsible for childcare). The integration of women into the labor force has been a major force affecting household consumption patterns with wide economic implications.

Indeed, nowadays women tend to stay in the labor market during their active life, combining paid work for the market with unpaid work in the household. From the perspective of time allocation between household members, this implies that women are devoting a higher proportion of their time to employment and less time to household production and to leisure. The substitution of unpaid household labor, e.g. housecleaning, childcare, babysitting, food away from home, clothing care, personal with household care services provided by public or private suppliers can fulfill several aims. First of all, it can be a relevant strategy promoting employment growth. Secondly, it has been claimed that the expansion of services provided by the market can contribute to fostering equal gender opportunities as it reduces the burden of unpaid household work, most often carried out by women. Finally, the purchase of household services can enhance efficiency as part of a time-saving strategy for unpaid household work (European Commission, 2001, pp. 103-108). The interaction between female labor supply and consumption patterns has thus deserved increasing attention in literature and in the policy debate.

The aim of this paper is to investigate the impact of female labor force participation on the consumption behavior of Portuguese households. We focus on specific expenses, namely: household services, personal services, food away from home, childcare, culture, and travel for tourism. The study relies on micro data on individuals and their households, the Portuguese *Household Expenditure Survey*, gathered by the National Statistics Office. Along with detailed information on household expenditure and several demographic characteristics of its members, the data set includes information on the labor market status of each family member.

Surprisingly for a Southern European country, female participation in the labor market increased very sharply in Portugal from the 1960s onwards, such that nowadays the country has one of the highest female activity rates in the European Union, after Scandinavia, the UK and the Netherlands. Under these circumstances, the evidence gathered for Portugal on the links between increased female labor force participation and household consumption patterns can provide relevant insights for other countries.

The paper is structured as follows. Section 2 provides an overview of trends in female labor force participation, with emphasis on Portugal. Section 3 summarizes the theoretical background for the analysis, while section 4 reviews the empirical evidence on the link between household consumption patterns and female participation. Sections 5 and 6 describe the data set and the empirical model used and section 7 discusses the results. Concluding comments are presented in section 8.

## TRENDS IN FEMALE LABOR FORCE PARTICIPATION

The growth in female activity rates has been widespread (see Table 1 for the European Union countries - EU15). In the 1950s and 1960s, the Southern European countries (Italy, Greece, and in particular Portugal and Spain), together with Belgium, presented the lowest female activity rates. It was as low as 14% in Portugal in 1960. At the other extreme, female activity rates in Finland, Denmark, Austria and Germany ranged from 30% to 40%. By the end of the twentieth century, the Scandinavian countries had the highest female participation rates, around 50%, whereas Ireland, Luxembourg, Greece, Spain, Italy, and Belgium shared the lowest figures, from 29% to 33%. The notable exception in Southern Europe was Portugal which had followed a similar, though more pronounced, trend to the Netherlands. In fact, as a result of the sharp rise in the female participation rate, especially during the 1970s, Portugal had one of the highest figures in the European Union (43%) in 2000, second only to the Scandinavian countries and the UK. Figures for 2005 already set the Netherlands above Portugal, considering an alternative measure which considers just the total population of active age (15 to 64 years old) in the computation of the activity rate (see Figure 1).

Several aspects may have combined to generate this trend in female labor force participation in Portugal. During the 1960s, the Portuguese economy grew at a fast pace but the Army and emigration absorbed a high proportion of the male population of working age. Indeed, war in Africa against pro-independence movements deprived the country's productive structure of a relevant share of the male labor force and this trend was reinforced by massive emigration, mainly of males. Women were therefore

gradually called on to play a role in the productive process. In the mid seventies, the Revolution that brought the fascist regime to an end facilitated the integration of women into the labor market (Cardoso, 1996).

The study by Martins (2001) on female labor supply in Portugal using sample selection models pointed out that, unlike most other countries, the probability of finding women in the labor force in Portugal is not reduced significantly by having young children (under the age of 3). On the other hand, as in most countries, the decision to join the labor force is positively influenced by education and age.

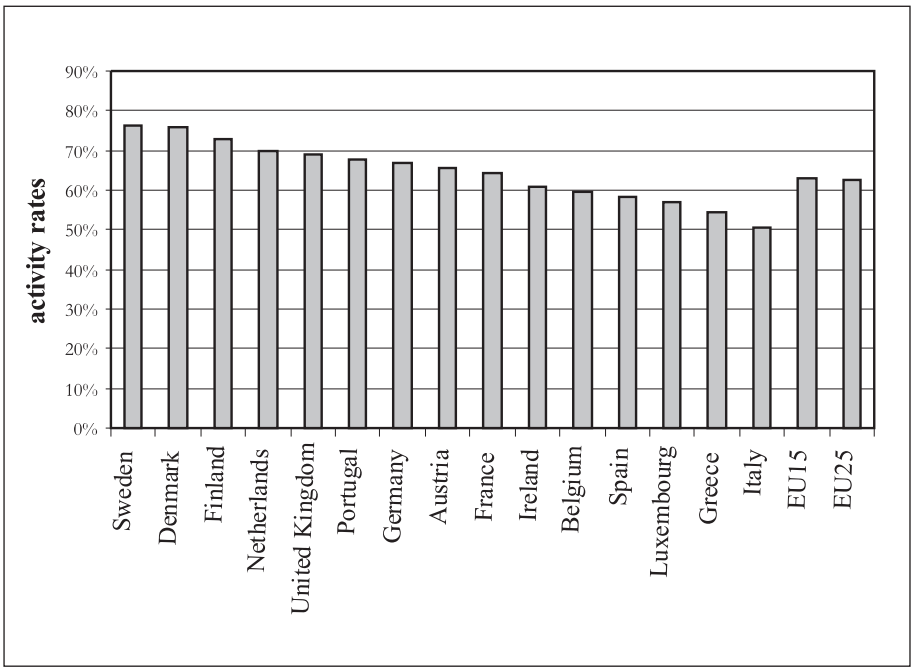
**TABLE I**

**Female labor force participation, European Union countries, 1950-2000**

| | Austria | Belgium | Denmark | Spain | Finland | France | Germany | Greece | Ireland | Italy | Luxembourg | Netherlands | Portugal | Sweden | UK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1950 | 36.3 | 19 | 32.3 | 12.6 | 39.6 | 28.3 | 34.2 | 18 | 23 | 21 | 26.4 | 18.7 | 17 | 23.2 | 25.3 |
| 1960 | 36.3 | 20.1 | 28.7 | 14.4 | 35.8 | 28.1 | 35.3 | 18.9 | 20.1 | 21.2 | 22.5 | 15.8 | 13.5 | 25.5 | 28.7 |
| 1970 | 30.4 | 22.4 | 34.5 | 18 | 40.4 | 30.1 | 33.4 | 19.5 | 20.1 | 21.9 | 20.3 | 19.1 | 18.9 | 33.3 | 31.9 |
| 1980 | 34.5 | 26.6 | 46.1 | 20.8 | 45.4 | 34.7 | 36.6 | 21.4 | 20.9 | 25.7 | 26.6 | 24.9 | 35.4 | 44 | 36.3 |
| 1990 | 36.1 | 31.2 | 51.4 | 27.7 | 47.3 | 36.8 | 40.5 | 28.8 | 23.6 | 30.7 | 30.6 | 35.5 | 40.2 | 51 | 41.2 |
| 1995 | 36.8 | 32.5 | 51.6 | 30.2 | 47.3 | 38.4 | 41 | 30.6 | 26.4 | 32.4 | 30.9 | 36.7 | 41.9 | 51.2 | 42.2 |
| 2000 | 37.4 | 33.4 | 50.8 | 32.3 | 47.3 | 39.9 | 41.3 | 32.2 | 29.3 | 33.4 | 31.1 | 37.4 | 43.1 | 51.5 | 43.3 |

**FIGURE 1**

**Female labor force participation in the European Union, 2005**



## HOUSEHOLD CONSUMPTION BEHAVIOR: A THEORETICAL APPROACH

The household production model (Becker, 1965) was used to identify the determinants of household expenditure for services. It considers that a set of commodities, which cannot be purchased in the market but produced instead in the household taking market goods and leisure time as inputs, enters the household utility function. The household is thus seen as a production and a consumption unit, and the model is no more than the integration of consumer theory with production theory. The latter is relevant in household decision-making concerning the efficient use of market goods, time, and human capital as inputs used in the production of commodities that cannot be acquired in the market and from which utility is derived (Deaton and Muellbauer, 1980, p. 245). Soberon-Ferrer and Dardis (1991) introduce a different perspective from Becker's model. They consider the household decision process as sequential, i.e. household members first enter the labor force to obtain a certain level of income and only then do they make consumption decisions based on income and time constraints. Husband and wife's labor supply decisions are made simultaneously and the wife's income is treated as permanent, rather than transitory, in this process.

In this analysis, households are both production units and utility maximizing units. They combine time and market goods by means of a production function to produce commodities that enter their utility functions. These commodities produced in the household are denoted by $Z_i$ ($i$ = 1, 2, ..., $n$) and are obtained from the following production function:

$$Z_i = f_i(x_i, t_i, E) \tag{1}$$

where $x_i$ and $t_i$ are, respectively, the vectors of market goods and time inputs used in the production of $Z_i$, and E is the production technology of the household. It is assumed that the household chooses the best combination of $Z_i$ in order to maximize the utility function $U$:

$$U = U(Z_1, Z_2, ..., Z_n) \tag{2}$$

Equation (2) is maximized subject to two constraints: budget and time, and to the production functions of equation (1). The budget constraint (of market goods) can be defined as:

$$\sum_{i=1}^{n} p_i x_i = wt_w + V = Y \tag{3}$$

where $p_i$ is the price of market good $x_i$, $w$ the wage rate, $t_w$ the time input devoted to market production; $V$ refers to unearned income and $Y$ to total household income. On the other hand, the time constraint for individual k can be expressed as:

$$T_k = t_{wk} + \sum_{i=1}^{n} t_{ik} \quad (4)$$

where $T$ is the total time available for market and household production, $t_w$ reflects time spent in market production, and $t_i$ represents time spent in household production of good $i$.

Following the formulation by Soberon-Ferrer and Dardis (1991: 388), household demand for services can then be defined as:

$$p_i x_i = x_i(t_w, w, V, D_1, D_2, L, E) \quad (5)$$

where $p_i x_i$ is the total expenditure on service $i$, $D_1$ a vector of preferences, $D_2$ a vector of service needs, and $L$ refers to location (designed to be a proxy for service costs).

Developments by models of bargaining within the household assume that the wife's and husband's preferences may be different, such that the expenditure pattern of the household is the outcome of a bargaining process. The employment status and the income level of each spouse would influence his/her bargaining power, and should therefore be explicitly considered in models of household expenditure (see Lundberg and Pollak, 1996, 1997; Phipps and Burton, 1998).

## HOUSEHOLD CONSUMPTION BEHAVIOR: EMPIRICAL EVIDENCE ON THE IMPACT OF FEMALE LABOR FORCE PARTICIPATION

Empirical work on the determinants of household expenditure has focused especially on the purchase of durables and less attention has been devoted to the analysis of the determinants of household expenditure on services. Variables such as household income, family life cycle, size of the household, number of children, location, and the working status of the wife are considered major determinants of household consumption expenditure. For example, Pfleeger (1996) highlights the growth in female participation rates as one of the major factors influencing consumption, along with demographic trends, the increase in family income and technological progress. Gray (1992) states that a substantial part of the expenditure on time-saving goods and services, e.g. microwaves, childcare and food away from home, is due to the increase in female labor force participation.

Strober and Weinberg (1977) studied the relationship between labor force participation of married women and household expenditure on a set of time-saving durable goods (dishwasher, dryer, refrigerator, stove, washer), other durables, hobby and recreation items, vacations and college education. The results showed that total family income is a significant variable in explaining purchase decisions and that the wife's

participation in the labor force is not relevant in the explanation of the decision to purchase time-saving durables.

In a later study, Strober and Weinberg (1980) also accounted for expenditure on the purchase of microwaves and freezers. The authors concluded that there is no significant difference between working wives and non-working wives concerning the use of time-saving strategies. Holding income and family life cycle constant, results indicate that neither the wife's working status nor her recent entry into the labor force are significant in explaining purchase decisions of time-saving durables.

Weinberg and Viner (1983) used data from the 1997 *Michigan Survey Research Center Survey of Consumer Credit* to compare the expenditure on durables and on recreation items and leisure between women that work in the labor market and those who do not. They intended to replicate the set of independent variables and goods categories used by Strober and Weinberg (1977): the dependent variables were purchase decisions and expenditure on time-saving durables and other durables. The study revealed that female labor force participation was not a significant variable in the explanation of purchase decisions or expenditure on time-saving durables, when income, family life cycle and other variables were held constant.

Similar results were obtained by Nickols and Fox (1983). In their analysis, in addition to expenditure on durables, the authors considered expenditure on some service categories (namely expenditure on food away from home, cleaning, laundry, dry cleaning and childcare). Using a stepwise discriminant analysis, they concluded that working wives do not adopt the strategy of substituting capital equipment for unpaid household labor, whereas the purchase of childcare services is an important strategy for women who are in the labor market.

The empirical evidence available therefore indicates that female labor force participation does not have a significant impact on the decision to purchase durables, while income and family life cycle do.

However, research into the determinants of household expenditure on services revealed contrasting results. Bellante and Foster (1984) studied the relationship between the wife's working status and expenditure on time-saving services. Using data from the 1972-1973 *Consumer Expenditure Survey*, the sample included 3 732 husband-wife families (both under the age of 65) in which the husband was employed full-time (35 or more hours per week). The dependent variables considered were household expenditure on selected service categories such as food away from home (restaurants, cafeteria and schools), childcare (babysitters, childcare centers),

domestic services (cleaning, cooking, laundering), clothing care (dry cleaning, clothing repair and alterations), personal care (barbershop, and beauty parlor services), and total services. Results of an OLS regression indicated that, along with income and family life cycle, wife's education and her employment status were significant variables in explaining expenditure on several service categories.

A later study by Jacobs *et al.* (1989) used data from the 1984-1986 *Consumer Expenditure Survey* to examine the impact of female labor force participation on income and on household expenditure. To determine the effect of wife's earnings, the authors studied two consumption groups: units in which only the husband had earnings, and units in which both husband and wife (and no other household member) were income-earners. The dependent variables considered in the analysis were expenditure usually related to women working in the labor market: expenditure on food away from home, women's apparel, childcare, acquisition of new and used vehicles, gasoline and motor oil, public transport, and housing expenditure. Tobit analysis revealed that families with a working wife spend significantly more on food away from home, child care, women's apparel, and on gasoline and motor oil, than families without working wife.

Soberon-Ferrer and Dardis (1991) investigated the determinants of household expenditure on services using data from the 1984-1985 Bureau of Labor Statistics *Consumer Expenditure Survey*. The sample selected included 650 families in which both husband and wife worked. Using the same service categories as Bellante and Foster (1984), Soberon-Ferrer and Dardis's Tobit analysis showed that there are significant differences in childcare, food away from home, and total service expenditure between full-time and part-time working wives. In general, variables such as the wage rate, work hours and unearned income had a significant impact on service expenditure, while the impact of variables like family life cycle, education and location, varied depending on service category and on the wife's involvement in the labor market (full-time or part-time).

Therefore, the labor force participation of the wife and her wage are in general found to have a significant impact on the purchase of services and certain non-durable goods, as opposed to their impact on the purchase of durable goods. These differences in the results for durables and services expenditure may be explained by the fact that the family decision to purchase durables is not simply a labor saving one. As Soberon-Ferrer and Dardis (1991, p. 386) underline, technological progress improved the quality and performance of most household durables making them desirable to both working and non-working wives. It is thus not surprising that income is the major determinant of purchase decisions for durables.

For Portugal, to our knowledge there is no study evaluating the impact of female labor force participation on household services consumption. This lack of studies, the trend in female labor force participation in Portugal and the availability of reliable data therefore make this country a good case study.

## DATA SET USED

Cross-section data for 1989/1990 and 1994/1995 from the Household Expenditure Survey (*Inquérito aos Orçamentos Familiares - IOF*) were used in the analysis. *IOF* is a survey of consumer expenditure and earnings conducted by the Portuguese Statistical Office (*Instituto Nacional de Estatística*) since 1967. Its aim is to obtain information on households' consumption patterns and living conditions, according to a set of demographic, social and economic variables. The survey is conducted in all the Portuguese territory (mainland and islands), based on a representative sample of households.

*IOF* collects data on household characteristics (e.g.: size, type and economic situation), household members' characteristics (e.g.: age, gender, marital status, education and working status), household expenditure and earnings. The reported earnings refer to the twelve-month period previous to the inquiry. As to expenditure, the *observation period* for each household is a one-week period for the 1989/1990 survey and a two-week period for that of 1994/1995, during which the household representative and each individual must fill out a report of daily expenses; expenses considered to take place more infrequently (monthly, bimonthly or annually) are gathered through interviews (usually five for each household).

Since the aim of the study is to investigate the impact of the wife's working status on different types of service expenditure, it focuses and reports on households with both husband and wife present. The sample under analysis includes 9 323 households from the 1989/1990 survey and 7 807 households from the 1994/1995 survey. Further detail on the sample sizes and descriptive statistics are presented in Tables A1 and A2 in appendix.

## METHODOLOGY

The following types of household expenditure have been selected for analysis:

- domestic services;
- personal services: hairdressers, beauty and related services;
- food away from home: restaurants, cafes and similar services;
- childcare;

- culture: cinema, theatre, concerts, other shows and cultural events;
- travel (for tourism).

The Tobit model is often used to investigate the determinants of household expenditure (see for example Kinsey, 1981; Weinberg and Winer, 1983; Jacobs *et al.*, 1989; Soberon-Ferrer and Dardis, 1991). Developed by Tobin (1958), this model is used when facing a censored sample, i.e. a sample in which information on the dependent variable is available only for some observations. In consumer expenditure surveys many variables have a lower (or upper) limit and «take on the limiting value for a substantial number of respondents» whereas «for the remaining respondents, the variable takes on a wide range of values above, or below, the limit» (Tobin, 1958, p. 24). The dependent variable in expenditure studies takes the value zero for a substantial number of observations.

However, there is no consensus on the use of Tobit model for expenditure or consumption analysis, as the following examples illustrate. Melenberg and Van Soest (1996) have used sample selection models: the first equation explains the decision whether to purchase a certain type of service, whereas the second explains the amount spent. Atkinson *et al.* (1990) used a double-hurdle model and a Tobit model with Gamma-distributed error term to model spending on alcohol. Keen (1986) handled the issue of measurement error due to infrequent purchasing of certain commodities (such that expenditure over a short period of time will be an inaccurate indicator of true consumption), and used instrumental variables to estimate Engel curves for different commodities. Miles (2001) used a multivariate negative binomial model to explain the count of purchases of bread-related goods. Other authors simply used OLS regression to explain the determinants of household expenditure (Strober and Weinberg, 1977; Bellante and Foster, 1984).

In this study we rely on the estimation of Tobit models. The central explanatory variable is the labor market situation of the wife, which is included in the model as a set of dummy variables: employed and unemployed, with inactive as the omitted category. The working status of the husband is also included among the regressors. The (log of) the household's total expenditure is considered as a proxy for the (log of) income2, as commonly found in the literature.

To control for differences in family life cycle, the variables family size, number of children (under the age of 5) and wife's age were introduced. Family size refers to the number of household members excluding children under the age of five and wife's age was included as a dummy variable with five categories. To allow for variations in preferences, the wife's education was included in the model as a dummy variable with

six categories. The region is included to account for differences in service costs/availability between developed and less developed regions, and six different categories were considered: North, Centre, Lisbon and the Tagus Valley, Alentejo, the Algarve, and the Islands.

The expected impact of each independent variable on service expenditures is summarized in Table II.

**TABLE II**

**Impact of independent variables on service expenditure, according to previous studies**

| *Independent variable* | *Effect on service expenditure* | *Authors* |
|---|---|---|
| (Log) total expenditure | Positive | Bellante and Foster (1984); Jacobs et al. (1989); Soberon-Ferrer and Dardis (1991) |
| Labor market situation of wife (employed) | Positive<br>Positive (food away from home, childcare) | Bellante and Foster (1984); Jacobs et al. (1989); Soberon-Ferrer and Dardis (1991) |
| Labor market situation of the husband (employed) | Positive | |
| Family size | Positive | Soberon-Ferrer and Dardis (1991) |
| Children under five | Positive (childcare) | Bellante and Foster (1984); Jacobs et al. (1989); Soberon-Ferrer and Dardis (1991) |
| Age of wife | Varies by service category | Bellante and Foster (1984); Jacobs et al. (1989); Soberon-Ferrer and Dardis (1991) |
| Education of wife | Varies by service category<br>Positive (food away from home, childcare)<br>Positive (domestic services, personal care) | Bellante and Foster (1984)<br>Jacobs et al. (1989);<br>Soberon-Ferrer and Dardis (1991) |
| Region | Developed regions will spend more | |

Each regression was run on the pooled sample of observations for 1989/90 and 1994/95, and a dummy variable for 1995 was included in the model.

## FOOD AWAY FROM HOME, CHILD CARE, DOMESTIC SERVICES AND TRAVEL: THEIR BUDGET SHARES INCREASE WHEN THE WIFE IS EMPLOYED

Most of the services under analysis - domestic services, personal services, childcare, food away from home, and travel - present an elasticity related to total expenditure larger than one, and can therefore be considered luxury items3 (see Table 3). Their ranking, from least to most luxurious is as follows: personal services, food away from home, childcare, domestic services and travel for tourism. The later result is in line with what has been found for the Netherlands by Melenberg and Van Soest (1996). Cultural services present an elasticity close to one, but the impact of total expenditure on that type of expenses is not statistically significant. Most households (89%) report non-zero cultural expenditures, with a very low average value.

In line with bargaining models, the consumption pattern of the household may change if the woman is employed, as her preferences gain increased relevance in the decision process if she earns part of the household income. Time constraints faced by employed women could be another reason leading to different consumption patterns in households where the woman works for the market.

Our results indicate that the wife's employment status has a significant impact on the budget share spent on every service category except personal services. Indeed, households with an employed wife allocate a higher proportion of their budget to childcare, food away from home, domestic services, culture and travel, than do households where the woman does not participate in the labor force.

This contrasts to the male pattern. In fact, households with an employed male allocate a higher share of their budget to food away from home when compared to households where the man is not in the labor force, but the impact of male employment is either negative or non-significant (at the 5% level) for every other type of expenditure considered.

The wife's schooling attainment tends to have a positive impact on the demand for culture, travel, personal services, domestic services and childcare, whereas its impact on the share of expenditures in food away from home is not monotonic.

Over the life cycle, the relative demand for domestic and personal services increases; in contrast, not surprisingly, the demand for childcare decreases as does the demand for food away from home. According to Soberon-Ferrer and Dardis (1991), personal services expenditure is expected to increase with age in 'youth-dominated cultures'.

## TABLE III
## Tobit analysis for service expenditure

| *Independent variable* | *Dependent variable (budget shares)* | | | | | |
|---|---|---|---|---|---|---|
| | Domestic services | Personal services | Food away from home | Child care | Culture | Travelling |
| **Wife's employment status** *(inactive omitted)* | | | | | | |
| EMPLOYED | 2.16 | .02 | 1.81 | 6.10 | .07 | 1.07 |
| | (4.50)* | (.78) | (7.95)* | (9.91)* | (3.65)* | (1.98)** |
| UNEMPLOYED | -7.01 | -.05 | .45 | 4.85 | .08 | -.54 |
| | (-2.89)* | (-.72) | (.69) | (3.73)* | (1.34) | (-.28) |
| **Husband's employment status** *(inactive omitted)* | | | | | | |
| EMPLOYED | -3.10 | .06 | 2.41 | .09 | .04 | -1.22 |
| | (-5.69)* | (1.91)*** | (8.50)* | (.08) | (1.80)*** | (-1.82)*** |
| UNEMPLOYED | -9.54 | -.03 | .37 | -.43 | .03 | -1.63 |
| | (-4.31)* | (-.45) | (.56) | (-.24) | (.59) | (-.89) |
| **Total expenditure** | | | | | | |
| LOG TOTAL EXPENDITURE | 6.83 | .13 | 3.28 | 2.08 | .02 | 6.89 |
| | (18.25)* | (7.30)* | (19.36)* | (4.92)* | (1.54) | (14.58)* |
| **Family composition** | | | | | | |
| FAMILY SIZE | -1.57 | .01 | .58 | .37 | .01 | -.88 |
| | (-8.14)* | (1.44) | (6.66)* | (1.83)*** | (.87) | (-4.14)* |
| NUMBER OF CHILDREN (under 5) | 1.67 | -.05 | -.50 | 6.69 | -.09 | -2.52 |
| | (3.26)* | (-1.68)*** | (-1.77)*** | (14.52)* | (-3.52)* | (-3.48)* |
| **Age of wife** *(<25 omitted)* | | | | | | |
| 25-34 | 2.73 | .14 | -1.64 | 1.47 | -.02 | -.40 |
| | (1.66)*** | (1.79)*** | (-2.25)** | (1.38) | (-.26) | (-.23) |
| 35-44 | 5.72 | .32 | -3.88 | -2.32 | .07 | 1.21 |
| | (3.41)* | (3.87)* | (-5.19)* | (-2.01)** | (.96) | (.68) |
| 45-54 | 6.37 | .38 | -4.57 | -6.48 | .07 | 1.92 |
| | (3.72)* | (4.58)* | (-6.01)* | (-4.86)* | (.99) | (1.07) |
| >54 | 10.70 | .55 | -5.20 | -6.24 | .09 | 2.98 |
| | (6.21)* | (6.48)* | (-6.75)* | (-4.24)* | (1.23) | (1.63) |
| **Education of wife** *(illiterate or never attended school omitted)* | | | | | | |
| FOUR YEARS | 2.63 | .21 | .55 | 1.90 | .07 | 2.67 |
| | (4.03)* | (7.39)* | (2.01)** | (1.81)*** | (2.88)* | (3.47)* |
| SIX YEARS | 7.28 | .26 | 1.46 | 1.56 | .14 | 3.65 |
| | (8.19)* | (5.37)* | (3.29)* | (1.28) | (3.42)* | (3.33)* |
| NINE YEARS MINIMUM SCHOOL | 10.83 | .29 | 2.63 | 4.19 | .11 | 6.37 |
| | (12.53)* | (5.55)* | (5.40)* | (3.39)* | (2.62)* | (6.14)* |
| HIGH SCHOOL | 12.88 | .45 | 1.98 | 5.15 | .23 | 6.10 |
| | (13.66)* | (7.26)* | (3.43)* | (3.94)* | (4.37)* | (5.27)* |
| COLLEGE GRADUATE (15 or more years) | 14.74 | .34 | -.74 | 3.72 | .34 | 7.01 |
| | (16.76)* | (6.07)* | (-1.40) | (2.90)* | (7.27)* | (6.69)* |
| **Region** *(Lisbon and Tagus Valley omitted)* | | | | | | |
| NORTH | 1.28 | .18 | -1.05 | -.62 | -.07 | .31 |
| | (2.84)* | (7.00)* | (-4.42)* | (-1.19) | (-3.09)* | (.58) |
| CENTER | -1.13 | .03 | -1.97 | -3.21 | -.05 | -3.40 |
| | (-2.08)** | (1.03) | (-7.01)* | (-4.81)* | (-1.83)*** | (-5.02)* |
| ALENTEJO | -7.05 | -.21 | -1.78 | -12.89 | -.30 | -16.23 |
| | (-8.04)* | (-4.62)* | (-4.14)* | (-10.72)* | (-.80) | (-11.15)* |
| ALGARVE | -16.28 | .11 | -2.14 | -18.85 | .01 | -15.49 |
| | (-14.24)* | (1.93)*** | (-4.07)* | (-12.87)* | (.29) | (-12.51)* |
| ISLANDS | -23.61 | -1.78 | -19.78 | -39.54 | -.71 | -31.42 |
| | (-20.18)* | (-28.27)* | (-33.80)* | (-18.88)* | (-14.68)* | (-18.06)* |
| **Year** *(1990 omitted)* | | | | | | |
| 1995 | .00 | -.04 | -.89 | 1.94 | -.27 | -2.89 |
| | (.01) | (-1.95)*** | (-4.13)* | (3.77)* | (-14.33)* | (-5.08)* |
| INTERCEPT | -72.38 | -1.17 | -16.79 | -37.94 | .27 | -68.33 |
| | (-21.68)* | (-8.41)* | (-12.83)* | (-10.72)* | (2.31)** | (-16.63)* |

Households with more children under the age of five allocate a higher proportion of their budget to childcare, and also to domestic services (in line with the results by Bellante and Foster, 1984; Jacobs *et al.*, 1989; Soberon-Ferrer and Dardis, 1991). In contrast, they present a lower demand for culture and travel.

Larger families tend to spend relatively more on restaurants and other types of food away from home, whereas they travel less. As expected, households who live in less developed Portuguese regions, like Alentejo and the Islands, tend to spend less on every service category than do households in other regions.

## CONCLUSION

Female labor force participation is usually seen as a central variable among the determinants of expenditure for services. Relying on micro data on households and individuals, we concentrated on the impact of female labor force participation on expenditure patterns in Portugal, a country where female integration into the labor market has risen astonishingly over the last decades.

Results on the estimation of Tobin models indicate that domestic services, personal services, childcare, food away from home, and travel are luxury items and that the employment status of the woman has a significant impact, raising the demand for services. Households with an employed wife allocate a higher proportion of their budget to culture, travel, childcare, food away from home, and domestic services, when compared to households where the woman does not participate in the labor force. Female employment can therefore contribute to raising the demand for several service activities, creating potential for employment growth.

## APPENDIX

**TABLE AI**
**Sample sizes**

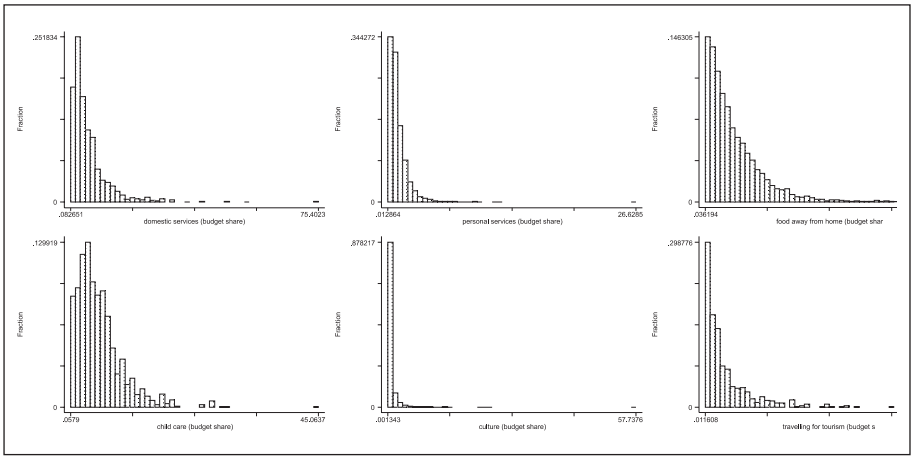
| *Number of observations* | *IOF sample* | | *Study sample* | |
|---|---|---|---|---|
| | *1989/1990* | *1994/1995* | *1989/1990* | *1994/1995* |
| Households | 12,403 | 10,554 | 9,323 | 7,806 |
| Households (weighted) | 3,189,958.3 | 3,285,848 | 2,422,127 | 2,439,302 |
| Individuals | 40,047 | 32,124 | 33,397 | 26,915 |
| Individuals (weighted) | 9,933,582 | 9,914,246 | 8,344,402 | 8,301,386 |

**TABLE AII**

**Descriptive statistics (weighted simple)**

| *Variable* | *Percentage* | *Mean* | *Std. deviation* |
|---|---|---|---|
| **Budget share allocated to** (*): | | | |
| Domestic services | 7.36 | 5.37 | 5.58 |
| Personal services | 66.10 | 1.04 | 0.93 |
| Food away from home | 77.10 | 10.49 | 10.31 |
| Childcare | 4.03 | 5.18 | 4.12 |
| Culture | 88.66 | .61 | 1.04 |
| Traveling | 3.63 | 4.32 | 5.49 |
| **Wife's employment status** | | | |
| Inactive | 56.24 | | |
| Unemployed | 2.25 | | |
| Employed | 41.52 | | |
| **Husband's employment status** | | | |
| Inactive | 29.13 | | |
| Unemployed | 2.51 | | |
| Employed | 68.37 | | |
| **Expenditure** (**) | | | |
| (Log) total Expenditure | | 7.30 | 0.80 |
| **Family composition** | | | |
| Family size (Number of household members minus the number of children under age five) | | 3.29 | 1.30 |
| Number of children under age five | | .14 | .38 |
| **Age of wife** | | | |
| Less than 25 | 1.94 | | |
| 25-34 | 15.38 | | |
| 35-44 | 22.28 | | |
| 45-54 | 21.69 | | |
| Greater than 54 | 38.70 | | |
| **Education of wife** | | | |
| Illiterate or never attended school | 28.09 | | |
| Four years | 48.32 | | |
| Six years | 8.30 | | |
| Nine years (current compulsory education) | 6.07 | | |
| High school | 3.85 | | |
| College graduate (fifteen or more years) | 5.37 | | |
| **Region** | | | |
| North | 33.25 | | |
| Center | 18.09 | | |
| Lisbon and Tagus Valley | 34.76 | | |
| Alentejo | 6.16 | | |
| Algarve | 3.73 | | |
| Islands | 4.01 | | |
| **Year** | | | |
| 1990 (1989/1990 sample) | 49.79 | | |
| 1995 (1994/1995 sample) | 50.21 | | |

## FIGURE A1




## NOTES

1. Models of bargaining within the household would suggest the inclusion of female and male (log) income separately (see Phipps and Burton, 1998, and from another perspective Lundberg *et al.*, 1997). However, in approximately half the households, females have no income. We decided therefore to estimate the model just with the pooled household income, including the wife's labor force status as an indicator of her bargaining power within the household.

2. Given our specification of the model, the total expenditure elasticity for service i can be computed as $\varepsilon_i = 1 + \frac{\beta_{inc,i}}{\omega_i}$, where $\beta_{inc,i}$ stands for the estimated coefficient of (log) total expenditure in the regression for service *i*, and $\omega_i$ is the average budget share allocated to service *i*, computed over the household with non-zero expenditure for that item (see for example Verbeek, 2000, pp. 197-207).

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