Women's Labour Force Participation and Part Time Work in Spain

Nieves Lázaro – Maria-Luisa Moltó – Rosario Sánchez

Abstract. Spain is one of the southern countries where the percentage of women working part-time is relatively low in comparison to other European countries, together with a low female activity rate. Some important obstacles to increasing female activity rates have already been removed, as younger cohorts of women show a more permanent attachment to the labour force than older women, meeting even high unemployment, which is especially acute for women and young people. Under the recent labour market reform, it is hoped that part-time contracts, which were first regulated in 1984, would be a way of facilitating flexibility and an incentive for employers to create jobs, as the experience of other countries has shown. The relative novelty of part-time work in Spain is the reason why this typically female employment regime has not been much explored in Spain yet, in spite of its important role in the reorganisation of the employment system.

1. Introduction

Part-time work has become a policy issue in Spain considered as a flexible device to overcome existing rigidities in the labour market. It is also part of the deregulation strategy, which also affects new jobs for young people. Despite many disadvantages, it can be an instrument for women who tend to withdraw from the labour force

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The authors are grateful to Instituto Valenciano de Investigaciones Económicas for their help in data management, and to an anonymous referee for the comments which have improved the content of this paper. Earlier versions were presented at the Sixth Annual Conference of the European Association of Labour Economist, Warsaw, September 22–25, 1994 and at the XIX Simposio de Análisis Económico, UAB, Barcelona, December 1994.

Received on January 19, 1995 and approved by the Editorial Board on July 10, 1997.

LABOUR 11 (3) 449–468 (1997) JEL J21, J22, J60

when having children, to make family and work compatible, during the child-rearing period in the course of their life cycle. Thus, women should be given the chance to choose shorter working hours, under the best possible conditions.

The paper is structured in six sections. First we consider the recent evolution of part-time employment according to sex, education, marital status and motherhood in Section 2. Section 3 deals with the model. Data and variables appear in Section 4. Results are reported in Section 5 and, finally, some conclusions are drawn from the estimation exercise.

2. Increasing part-time employment

There is still relatively little experience of part-time employment in Spain. It was regulated by law in 1984. Nevertheless, in spite of the relatively small loss in the percentage of part-time employment for both men and women from 1987 to 1991, a positive trend has already been observed from 1991 onwards. Complete recovery in the percentage of part-time employment for both men and women occurred in a period of only two years, 1991–93. According to the Spanish Labour Force survey the percentages of part-time employment were 2.4 for men and 14.2 for women in the fourth quarter of 1993. It is interesting to notice that the part-time definition used in this section differs quite markedly from the definition used in the rest of this paper, since according to the labour force survey the information is obtained through a self-classification question into the part-time category, with a threshold of 35 hours a week.

Part-time employment can be considered a device used to counteract youth unemployment by introducing some flexibility in a labour market traditionally characterised by the full-time norm and little flexibility in working hours. The equalisation of part-time employment rates for men and women occurs in the recession and in the context of an increasing segmentation of the labour force.

According to Moltó (1994) there is a significant gap in the participation of this type of employment form for the adult work force; the percentage of women over 30 working part-time is around 15 percent, in comparison to a tiny 1 percent for adult men in 1991. A plausible interpretation of the evolution of those figures, through time, would be that part-time employment is not an instrument for women to share family and work during the child care/bearing years,

but that it is becoming a form to enter employment at the beginning of the work cycle for both men and women. But the presence of children under 14 seems to be a deterrent to full time employment, since the percentage of part-time employment is only 6.7 percent for women under 40 who are household heads or spouses with no children under 14. Consequently, we could hypothesise that family responsibilities in the absence of small children are not a disincentive for full-time employment. Moreover, the presence of children under 14 in general and, more specifically the increasing number of children, are incentives for part-time employment for women under 40, while this same fact does not have a significant influence for women over 40. In fact, the percentage of part-time employment for women under 40 goes from 11 percent, when having only one child under 14, up to 21 percent when the number of children is three or more. In addition, a generation effect can be observed by looking at the percentage distribution of women in part-time work according to the number of children, the shift of the maximum percentage in the distribution, corresponding to two children for women under 40 (36.2 percent of women under 40 working part-time have two children) to no children for women over 40 (69 percent of women over 40 working part-time have no children under 14). In other words, in the case of women under 40, the distribution of both part-time and full-time employment is flatter than in women over 40, which is skewed towards no child. This means that children act as a greater deterrent to either full-time or part-time employment for women over 40 in comparison to women under 40, who seem to shift towards part-time employment with the second child. The age of the youngest child makes no difference whatsoever in the percentage of part-time employment for women under 40, which is around 13 percent. For women over 40, this percentage is not very different. This could mean that women who withdrew from the labour force due to motherhood tended to join the work force again through full-time employment. The percentage distribution of both part-time and full-time employment for women under 40 is quite flat, meaning that the age of the youngest child is not an important determinant in the case of young women.

In any case, the full/part-time division not only depends on motherhood but is also closely related to professional status. Family workers have by far the higher percentage of part-time jobs. Nevertheless, a higher percentage of women than men in each professional status were working part-time in 1991. Thus nearly 20 percent of female family workers worked part-time, against 7.5

percent of male family workers. In the case of both employees and self-employed without employees, approximately 10 percent of women used to work part-time. This contrasts with 1 percent of male employees working part-time. At the same time, it is more likely for women over 40 to be either family worker and self-employed without employees than for women under 40. The distribution of family workers by age is also very different for women and men. Women over 40 represent 56 percent of all female family workers, while only 20 percent of family workers are women under 30. On the contrary, young men under 30 represent 66 per cent of all male family workers. In addition, 70 percent of female employees are women under 40, whilst 56 percent of male employees are men under 40. In short, professional status varies a lot by age between men and women.

3. The model

The well-known theoretical model of joint determination of the probability of women's participation, working hours, observed wage rate, and reservation wage, proposed by Heckman (1974), is used here as the background model for our estimation exercise.

In Amemiya's view Heckman provides a model where the reservation wage depends on desired working hours, so that the actual wage rate and worked hours are simultaneously determined, the model being based on Gronau's model (1973), where the offered wage is exogeneously determined, and whose main concern is the determination of the actual wage rate and not the worked hours.

In relation to our purpose, the last model has several drawbacks. First, as Heckman himself points out, working hours adjust offered and reservation wage, if the woman is free, to fix the number of hours. Second, the available information on the Household Expenditure Survey (1990–91) prevents us from estimating the parameters of a model of this type. Third, as Nakamura, Nakamura and Cullen (1979) stressed, there are different underlying explanatory theories about the labour force behaviour of married women. On the one hand human capital theories assume that labour demand of married women in any given education-experience class is infinitely elastic. Consequently, observed labour force behavioural differences can be solely attributed to differences in supply characteristics. On the other hand, occupational segregation by sex

is considered by segmented labour market theories as the major factor affecting participation, wage rates and working hours for married women. Thus, both individual and family variables as well as labour market factors should explain the labour market behaviour of married women.

Nakamura and Nakamura (1983) endogenised the offered wage and found statistical evidence of parameter instability over the range of variation in annual hours of work, though it did not result in sign changes.

We are precisely interested in determining the probability of women in part-time employment, according to different characteristics (age, marital status, number of children, etc.). But we would also like to explore whenever possible whether the decision to work part-time is in fact constrained by the availability of full-time jobs in a gender segregated labour market with high unemployment rates. Unfortunately, it is difficult to find a measure of desired hours of work because of the absence of surveys on preferences. Consequently, we will try an indirect test of the part-time employment constrain hypothesis.

Conditional inferences can be drawn from a sequential model, where we first consider the participation decision, second the employment situation (employed, unemployed) for women participants and third the employment regime (full-time versus part-time).

The participation equation derives from the standard theoretical model, according to which individual women are assumed to participate only if the offered wage exceeds their reservation wage. The employment equation comes from a disequilibrium model of labour demand and supply, unemployment being the result of an excess supply at the going wage rate. And finally, the equation of worked hours is determined as the result of the decision on how many hours an individual woman is prepared to work, given the availability of jobs in a specific occupation and sector.

In practice it is questionable whether women make their decisions this way. The decision of whether to participate or not and how many hours to work are often joint decisions if the participants are free to choose how many hours they would like to participate. As Maddala (1994) stresses, in the case of joint decisions, the error distributions are defined over the entire population. In a sequential decision model, the participation decision is defined over the entire population but the hours decision is defined only for the participating subpopulation. One can argue that the hours decision

involves a sequential decision process because the woman participant is not the only one that decides how many hours she will work. It is the employer who offers the job, the decision agent as well. However, even when decisions are sequential, if there are some common omitted variables the two decisions will be correlated. In this case it is not advisable to use a simple probit model to estimate the decision function determining whether women decide to hold a full-time job or a part-time job. Consequently, it should be necessary to think more about the basic decisions underlying the data. That is a woman will prefer a part-time job if the net benefit of a full-time job is negative. In other words, if the foregone earnings related to child care and household chores exceed the earnings of a full-time job. In any case, as Lee and Maddala (1994) show, the specification of sequential choices does not necessarily imply uncorrelated decision rules. Further investigation on whether the underlying latent variables can be defined over the entire population or whether they can be defined only on a subpopulation is advisable.

Alternatively, the problem can be posed as a conditional inference problem on how many hours women desire to work, since they have already decided to participate in the labour market. In this case the zero observations arise as the result of the employers choices and it can be supposed we are on the labour demand curve.

In addition, we have to consider that choices are partially observed. We have not observed those women who would like to work part-time but who are unemployed and are not observable as part-time employees. We have not observed either those women who would like to work full-time but find themselves restricted to taking either a part-time job or joining the disguised unemployment pool.

4. Variables and data

Recent data containing information on labour force participation and earnings and socio-economic characteristics of households are available in the Household Expenditure Survey (1990–91) (HES-91). This survey is a very good data source for income and expenditure, but detailed information is not provided for working hours, which is limited to more or less 13 hours a week or approximately one third of the ordinary 40 hours working week. This is not necessarily a serious drawback if we restrict our inferences to short part-time employment.

4.1. Definition of variables

The dependent variables are defined as follows:

(i) Labour market participation is a dummy which takes value one if women participate and zero for non-participants in the previous week.
(ii) Employment is a dummy variable equal to one if the woman is employed and zero if she was unemployed in the previous week.
(iii) Short part-time is a dummy variable equal to one if the woman worked 13 or less hours during the previous week and zero otherwise.

The explanatory variables are defined as follows:

(i) Total household members is a quantitative variable (MIEMHOG).
(ii) Urban is a dummy variable taking value one if the woman lives in a town with more than 50,000 inhabitants and zero otherwise (URBANA).
(iii) Number of household earners (NPERC).
(iv) Household income is a quantitative variable obtained by deducting the woman's own income from the total household income (INGRF).
(v) Womens' own income is a quantitative variable (INGPROP).
(vi) Higher education is a dummy variable equal to one if the woman has a higher educational attainment and zero otherwise (NEST).
(vii) Age is a set of six dummies: women 26–35 (EDAD2), women 36–45 (EDAD3), women 46–55 (EDAD4), women 56–65 (EDAD5), women over 65 (EDAD6), and women under 26, which is the reference category.
(viii) Occupation in the latter job comprises a set of seven dummies:
- professionals, technicians and armed force officials (OCU1),
- legislators, senior government officials and managers (OCU2),
- clerks (OCU3),
- service and sales workers (OCU4),
- agricultural and related workers (reference category),
- craft workers, plant and machine operators and assemblers (OCU6).

(ix) Socio-economic category of latter job consists of three dummies: (SIT1), which takes value one if the woman was an employer in the previous week and zero otherwise; (SIT2), takes value one if the women was a family worker and zero otherwise; the reference category is employee.

(x) Industrial branch of latter job, comprising four dummies:
- agriculture (ACT1),
- energy, extraction and chemical industry (ACT2),
- manufacturing and construction (reference category),
- services (ACTA4) is a broad category, which includes: distributive trades, hotel and catering, transport and communication, banking and finance, other services.

4.2. Statistical description of data

The sample of all women living as a couple is formed by 16,125 women; 3,614 of them are labour market participants; 2,945 women in our sample are employed and only 167 are on short part-time employment (working up to 13 hours a week).

We start by describing the sample used to estimate the participation equation. Women participants, employed women and women working 13 or less hours a week, here referred to as short part-time, by age group, appear in Table 1.

Participation of married women decreases with age, but participation rates are always under 50 percent, even for the younger groups, as Table 1 shows. The employment rates, measured

Table 1. Participation, employment and short part-time working week of married women by age

Age groups	Total	Participants		Employed		Short part-time	
		Abs. value	%	Abs. value	%	Abs. value	%
16–25	514	221	43.0	147	66.5	5	4.1
26–35	3283	1353	41.2	1039	76.8	51	4.9
36–45	3782	1116	29.5	964	86.4	54	5.6
46–55	3300	599	18.2	517	86.3	32	6.2
56–65	3188	309	9.7	264	85.4	21	8.0
>65	2058	16	0.7	14	87.5	3	21.4
Total	16125	3614	22.4	2945	81.5	167	5.7

Source: Household Expenditure Survey 1990–91.

as the percentage of women participants who are employed, increase with age, especially for women over 35. This is the expected result compatible with the relatively higher unemployment rates for young women, having employment/unemployment rates under/over the average. Finally, the percentage of married women working short part-time is relatively low for the young ones, up to 35 years old. We need to bear in mind that here we are referring only to a few working hours per week, and more probably young women entering employment could also be on part-time employment, but working more hours (up to 35 hours a week), as was shown above in Section 2.

Married women currently unemployed without previous labour market experience are excluded from the sample used for estimating the employment equation. This accounts for the difference of 136 observations, between the initial sample of 3,614 participants of Table 1 and the final sample of 3,478 participants with previous labour market experience of Table 2. The possible bias this restriction of the sample can cause on the estimates of employment equation is offset by the possibility of introducing labour demand indicators as explanatory factors, which are only available for those women currently employed and for the unemployed with a previous job. Notice that those women who enter the labour force for the first time cannot be classified into any occupation, socio-economic category or industrial branch.

Table 2. Employment, unemployment and short part-time working week of married women by socio-economic category of latter job

Socio-economic category	Total	Currently employed		Currently unemployed		Short part-time of currently employed	
		Abs. value	%	Abs. value	%	Abs. value	%
Employer*	643	674	98.7	9	1.3	29	4.3
Family worker	139	135	97.1	4	2.9	5	3.7
Employee	2656	2136	80.4	520	19.6	133	6.2
Total	3478	2945	84.7	533	15.3	167	5.7

*With and without employees.
Source: Household Expenditure Survey 1990–91.

The classification of married women currently employed and unemployed with labour market experience appears in Table 2. Note that 76.4 percent are employees against only 4 percent of family workers and 19.6 percent of employers (with and without employees). According to our sample the percentage of family workers currently employed is 97.1 percent and 98.7 percent in the case of employers. Consequently the estimated unemployment rate for self-employed in our sample is very low, the unemployment rate for employee women is much higher (19.6 percent). This is consistent with the fact that only married women who were employees had incentives to declare and register as unemployed, while women who are family workers and self-employed will tend to withdraw from the labour force and even from employment.

Generally, self-employed and family workers tend to work either a few or a lot of hours a week, depending on the industrial branch. According to our sample, the percentage of family workers on short part-time currently employed is 3.7 percent (see Table 2). It is of course lower than for employees, but it does not appear to be a great difference in relation to employers.

Additional information on sample means and standard deviations of the explanatory variables introduced in the binomial probit regression appear in the appendix.

5. Estimation results

Estimates of the participation, employment and working time equations which are commented next are based on the sample of women living as a couple, provided by the Household Expenditure Survey. The sample information on hours worked in the previous week prevented us estimating a working hours equation, which can otherwise be estimated using the appropriate labour force survey data. Nevertheless, the lack of income and wages data is an important drawback to obtaining estimates of the participation and hour equation. Consequently, the decision to rely on the Household Expenditure Survey, above all when modelling participation decisions of women within the household, seems adequate.

5.1. The participation equation

The labour market participation percentage estimate for married women or, more precisely, women living as a couple in Spain is 22.4 percent. All but one of the explanatory factors considered in the

Table 3. Participation equation. Binomial probit model maximum likelihood estimates

Variable	Coefficient	Std. error	*t*-ratio
Const.	0.43573E−01	0.6562E−01	0.664
MIEMHOG	−0.5249E−01	0.9883E−02	−5.311
INGRF	−0.5793E−07	0.1015E−07	−5.709
NEST	1.1393	0.4809E−01	23.690
URBANA	−0.6274E−01	0.2435E−01	−2.577
EDAD2	−0.4919E−01	0.6101E−01	−0.806
EDAD3	−0.27344	0.6208E−01	−4.405
EDAD4	−0.62455	0.6305E−01	−9.906
EDAD5	−1.0720	0.6436E−01	−16.65
EDAD6	−2.2764	0.1081	−21.05

$N = 16125$	
Log-likelihood	−7216.292
Restricted (slopes = 0) log-l.	−8579.762
Chi-squared (9)	2726.941
Significance level	0.0000000
% of corrected predicted cases	79.6%

probit model, which appear in Table 3, are significant at the 5 percent level. The exception is the urban dummy, which is significant at the 10 percent level.

The presence of children in the household is a deterrent for labour market participation of married women. Unfortunately, because of the fact that our particular data base does not allow us to distinguish between small children and grown up children living in the household, we can only provide estimates of the difference between the existence or not of household members under 16. Consequently, we decided to use the total number of household members living in the household (MIEMHOG) as a proxy for household production time requirements, instead of the children variable. The negative impact on the probability of participation adequately captures the expected effect of either the presence of small children or old relatives.

In general, we tend to believe that married women are secondary earners and that the higher the husband's income is, that is to say the higher the earnings of the principal worker, the lower the participation of the wife. Household income other than women's own wage, if employed (INGRF), has also a highly significant negative impact on the probability of participation.

The positive sign associated to the higher education variable (NEST) is an expected result, since it is generally accepted that higher education will have a positive incidence on the probability of participation.

The negative sign of the coefficient associated to the urban dummy (URBANA), indicates that the probability of participation decreases if the household is located in an urban area with more than 50,000 inhabitants.

Finally, the age factor is also an important determinant of the participation decision, especially in Southern countries like Spain, where the activity rate is increasing and, at the same time, cultural changes related to the role of women within the family and in society occurred during the transition period (Lázaro and Sánchez, 1993). The negative sign of the coefficients of age dummies is due to the negative impact of age on the probability of participation. Notice that there is no significant difference on the probability of participation of women 35 or younger, but the effect differentials are increasingly negative with age, being also significant for women over 35.

Comparison with previous estimates can throw light on several interpretations of parameter estimates on the participation probability. For example, Ross and Saunders (1993) found a very strong negative impact of pre-school children, but the presence of children ten years old and over had no significant influence. Main and Reilly (1994), on the other hand, used the age of youngest child dummies, and found positive estimated effects of grown up children on married women participation. Finally, Nakamura *et al.* (1979), used the number of children 19–24 years as a proxy for financial obligations and the income of the husband and the asset income of the family as important determinants of the asking wage of married women. Individual characteristics, on the one hand, such as educational attainment and regional economic characteristics, and on the other hand, such as rural versus urban areas, are important determinants of married woman's offered wage. After estimating the probit coefficients for the entire sample of married women they used a two-stage generalised least-squares procedure to estimate the regression equations for log of wages and hours using the subsample of women who actually worked.

Next we use the subsample of women who actually participate to estimate the probit equation for employed versus unemployed women.

5.2. The employment equation

The estimated unemployment rate for married women in our sample is 15.3 percent.

The employment probit equation was first estimated with the sample selection correction factor, which was significant at the 5 percent level. Because of the sensitivity of the sample selection factor to assumptions on the distribution, an unexpected sign related to the higher educational attainment dummy appears in the sample selection correction probit model. Consequently, the probit estimates without sample selection which appear in Table 4 are commented next.

The number of household members receiving income (NPERC) has a significant positive influence on the probability of a woman

Table 4. Employment equation. Binomial probit model maximum likelihood estimates

Variable	Coefficient	Std. error	*t*-ratio
Const.	−0.47192	0.3010	−1.568
NPERC	0.11075	0.4041E−01	2.741
URBANA	0.5681E−01	0.6198E−01	0.917
NEST	0.44380	0.1248	3.557
SIT1	1.6163	0.1399	11.549
SIT2	1.4404	0.2267	6.354
OCU1	0.87469	0.2987	2.928
OCU2	3.9203	42.09	0.093
OCU3	0.7299	0.2804	2.603
OCU4	0.4939	0.2791	1.770
OCU6	0.2430	0.2778	0.875
ACT1	−0.2504	0.2751	−0.910
ACT2	0.1351	0.2498	0.541
ACT4	0.1927	0.1115	1.729
EDAD2	0.2287	0.1071	2.136
EDAD3	0.5709	0.1139	5.015
EDAD4	0.5079	0.1301	3.905
EDAD5	0.4830	0.1497	3.227
EDAD6	0.2747	0.5719	0.480

$N = 3478$	
Log-likelihood	−1231.024
Restricted (slopes = 0) log-l.	−1489.640
Chi-squared (18)	517.2314
Significance level	0.0000000
% of corrected predicted cases	84.88%

being employed, since she is already a labour market participant. This has a straightforward interpretation in the context of internal labour markets. Since we are supposed to be in the demand curve, any woman with more chance of being introduced by her fellow employees to the potential employer will have a higher probability of being in employment, other things being equal.

It is interesting to analyse the impact of personal characteristics, indicators of the labour supply side, on the probability of being employed. On the one hand, higher educational level has a significant positive influence on the probability of being employed. On the other hand, age has a positive significant impact on the probability of employment for women 26 and over, with regard to women under 26, which is the reference category. The estimated coefficients corresponding to the age dummies are fairly similar, except the coefficient corresponding to the 26–35 age group, which is considerably lower. Consequently, since we are working with the subsample of women who have already made the decision to participate, we can interpret this result from the demand side point of view. Accordingly, we can conclude that employers (mostly male) show a greater willingness to employ married women who are not in the middle of their child-bearing period.

The socio-economic dummies (SIT1) and (SIT2), have both a significantly positive coefficient, showing that the probability of being in employment is higher for self-employed women (employers or family workers), than for employee women, which is the reference category.

The occupational dummies which show a significant positive impact on the probability of employment with respect to the reference category (agricultural and related workers) are the following: professionals and technicians (OCU1), clerks (OCU3) and service and sales workers (OCU4).

Finally, women in the service sector, have a positive and significant impact on the probability of employment with respect to the reference category which is manufacturing and construction.

The determinants of full-time versus part-time employment are considered below using the subsample of women in employment.

5.3. Short part-time employment equation

The estimated percentage of short part-time employment, which is up to 13 hours a week as defined by the Family Expenditure Survey, for women in Spain is 5.7 percent.

The working hours decision is the result of both supply and demand factors, as we hypothesised in a previous section. As Table 5 shows there are significant differences among industrial branches, and socio-economic categories, which are indicators of opportunity differences for full-time versus part-time employment of women in Spain. In effect, we found significant positive impacts on the probability of part-time employment of both services (ACT4) and energy and chemical industry (ACT2) with regard to manufacturing and construction, which is the reference category. There are also significant differences at the 5 percent level of both family workers and employers, in relation to employees. A negative impact on the probability of part-time in the case of employer women (SIT1) and family workers (SIT2), with respect to employee women, is observed in Table 5.

Table 5. Part-time equation. Binomial probit model maximum likelihood estimates

Variable	Coefficient	Std. error	*t*-ratio
Const.	−2.0214	0.5964	−3.389
MIEMHOG	0.39724E−01	0.3304E−01	1.202
NEST	0.21478	0.1836	1.170
INGPROP	−0.10719E−05	0.110E−06	−9.747
ACT1	0.26343	0.5450	0.483
ACT2	1.1005	0.3552	3.098
ACT4	0.29549	0.1874	1.577
SIT1	−0.33663	0.1087	−3.097
SIT2	−0.72567	0.2216	−3.275
EDAD2	0.31154	0.2165	1.439
EDAD3	0.36074	0.2221	1.624
EDAD4	0.37586	0.2301	1.633
EDAD5	0.52712	0.2391	2.205
EDAD6	1.3062	0.4340	3.010
OCU1	0.66878	0.5669	1.180
OCU2	−2.4537	50.33	−0.049
OCU3	0.5883E−01	0.5660	0.104
OCU4	0.46624	0.5459	0.854
OCU6	0.61095	0.5471	1.117

$N = 2945$	
Log-likelihood	−551.1092
Restricted (slopes = 0) log-l.	−641.4412
Chi-squared (18)	180.6641
Significance level	0.0000000
% of corrected predicted cases	94.3%

The number of household members (MIEMHOG) has a positive influence on the probability of part-time employment, though at 20 percent significant level. This is of course an expected effect as this factor was used as a proxy for household time requirements, which include family care of both small children and old people.

The age factor is only significant at the 5 percent level for old women. There is a positive impact on the probability of part-time employment of women over 55 (EDAD5), in relation to the reference category: women under 26. Women between 26 and 55 (EDAD2, EDAD3, EDAD4) do not show a significant differential impact on the probability of part-time employment. It makes no difference to the education dummy (NEST). In this case the expected negative effect of higher education on the probability of part-time employment is partly captured by the negative impact of higher wages, which will be associated with jobs of women with higher education.

Finally, the most relevant factor in the working hour decision, which is the woman's own income (INGPROP), appears highly significant and with a negative sign in Table 5. Consequently, the estimated negative impact of increasing income on the probability of part-time employment is compatible with the direct relationship between labour income and hours in the standard labour supply curve.

6. Concluding remarks

Recent developments on the labour market reform in Spain, where part-time will increasingly be used to accommodate labour demand to demand fluctuations, introducing flexibility on hours, do not necessarily take into account women's decisions as to how many hours they want to work under different household environments. It is interesting to test indirectly the relative effects of labour market demand and supply factors on the probability of part-time employment for married women.

In order to accomplish our objective, we need information on personal factors determining participation and hours devoted to the labour market, as well as household characteristics. The Household Expenditure Survey provides the relevant information on both personal and household characteristics. The decision to use this information was taken because of the lack of survey data on sources of income like wages, and nonlabour income. Consequently, there

appears to be a net gain in the use of the family expenditure sample, because of various income data, despite the loss of precision of other labour supply determining factors of married women like the presence of small children in the household. The proxy used in this paper, the total number of household members appeared adequate in both the participation equation and the hours equation.

The other important drawback to using the family expenditure sample is the restricted information on working hours to more or less than one third of the normal working week. Short part-time working is in any case an interesting issue to investigate as current developments suggest it is going to be used a lot in the future.

Finally, our results show that there are significant differences for married women of different age groups affecting the probability of labour market participation, the probability of employment for labour force participants, and also the probability of working a few hours a week for those women employed, but in this latter case only for women over 55 years old. Married women with higher education also have a significantly higher probability of participation and employment, conditioned on participation. Demand factors like the industrial sector and socio-economic category also play an important role in explaining differences on the probability of working short part-time for employed women. Women in the service sector will have a higher probability of working short hours than women in manufacturing, and self-employed women have a lower predicted probability of short part-time employment than women employees.

Appendix

Table A.1. Means and standard deviations of explanatory variables introduced into the binomial probit participation regression ($N = 16125$)

Variable	**Mean of** X	**Sd. of** X
MIEMHOG	3.7897	1.4403
INGRF	0.209E + 07	0.160E + 07
NEST	0.57182E − 01	0.23220
URBANA	0.48232	0.49970
EDAD2	0.20360	0.40269
EDAD3	0.23454	0.42373
EDAD4	0.20465	0.40346
EDAD5	0.19771	0.39828
EDAD6	0.12763	0.33369

Table A.2. Means and standard deviations of explanatory variables introduced into the binomial probit employment regression ($N = 3478$)

Variable	Mean of X	Sd. of X
NPERC	2.3672	0.79221
URBANA	0.49597	0.50006
NEST	0.16878	0.37461
SIT1	0.19638	0.39731
SIT2	0.39965E − 01	0.19591
OCU1	0.17251	0.37788
OCU2	0.172E − 02	0.415E − 01
OCU3	0.14922	0.35636
OCU4	0.43473	0.49579
OCU6	0.13571	0.34253
ACT1	0.11012	0.31309
ACVT2	0.10638E − 01	0.10261
ACT4	0.73663	0.44052
EDAD2	0.36889	0.48257
EDAD3	0.31110	0.46301
EDAD4	0.16878	0.37461
EDAD5	0.8741E − 01	0.28247
EDAD6	0.4313E − 02	0.655E − 01

Table A.3. Means and standard deviations of explanatory variables introduced into the binomial probit short part-time regression ($N = 2945$)

Variable	Mean of X	Sd. of X
MIEMHOG	3.9402	1.2963
NEST	0.18947	0.39195
INGPROP	0.876E + 06	0.628E + 06
ACT1	0.9542E − 01	0.29384
ACT2	0.984E − 02	0.987E − 01
ACT4	0.77046	0.42061
SIT1	0.22886	0.42017
SIT2	0.4584E − 01	0.20917
EDAD2	0.35280	0.47792
EDAD3	0.32733	0.46932
EDAD4	0.17555	0.38050
EDAD5	0.8964E − 01	0.28572
EDAD6	0.4753E − 02	0.687E − 01
OCU1	0.19185	0.39382
OCU2	0.203E − 02	0.451E − 01
OCU3	0.15178	0.35887
OCU4	0.44618	0.49718
OCU6	0.11681	0.32125

Note

[1]Detailed statistical tables containing data used in this section is available from the authors upon personal request (Lázaro, Moltó and Sánchez, 1995).

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