UNEMPLOYMENT DETERMINANTS FOR WOMEN IN SPAIN*

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WP-EC 95-15

*The authors are gratefull to Instituto Valenciano de Investigaciones Económicas for their help in data management, and to an anonymous referee the comments, which have improved the content if this paper. Earlier versions of this paper were presented to "Primeras Jornadas de Economía Laboral" organised by Departamento de Fundamentos de Economía e Historia Económica, Universidad de Alcalá de Henares, 7-9 June 1995 and to "7th EALE Conference", Université Lumière Lyon 2, 7-10 September 1995. We would like to thank the audiences for interesting suggestions.

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Resumen.
Espña es uno de los paises de la OCDE donde la tasa de desempleo es mayor. Algunas explicaciones destacan el papel relevante de la duración del desempleo en comparación con las tasas de entrada en el mismo. Las tasas de desempleo de larga duración son especialmente elevadas en el caso de las mujeres. El objetivo de este documento es investigar los determinantes del desempleo y de la duración del desempleo de las mujeres en España. Tomando como base la informcación de la Encuesta de Presupuestos Familiares 1990-91, se analiza el impacto de las características personales (nivel educativo, edad), variables socioeconómicas de la familia (el número de perceptores y la renta de los hogares) y el efecto de las prestaciones de desempleo

Abstract.
Spain is one of the OCDE countries where the unemployment rate is higher. Some explanations stress the important role played by unemployment spells in relation to entry rates to the unemployment pool. Long-term unemployment rates are particularly high for women in Spain. The object of this paper is to investigate the determinants of unemployment duration for women. We will consider personal characteristics (education and age), family background socioeconomic variables (the number of household earners and household income) and the effect of unemployment benefits, using data from the Household Expenditure Survey 1990-91.

1. Introduction.

The low employment rates for women in Spain reflects not only high unemployment rates but low levels of activity. Despite the fact that still too few women in Spain have the opportunity of having a job, they increasingly compete with men for new jobs. Nevertheless, the expansion of female labour supply, with a clear positive trend in the activity rates of middle age women, apart from cyclical variations which is also connected with sizeable increases on unemployment for those women, can throw some light on the true dimension of the employment problem in Spain (Moltó, 1994, 1995).

The objective of this paper is to investigate the unemployment duration for women. In fact, two components can be distinguished in the probability of unemployment: the probability of entry into the unemployment pool and the duration of unemployment (García, Polo and Raymond, 1986). A precise indicator of unemployment duration for women can be obtained by a measure of the searching period, given that according to Gönül (1992), it is clear that when women do not actively search for a job they are out of the labour force, and consequently, they cannot be considered as unemployed[1]. We can then use as the background framework to interpret our empirical findings, the standard job search model, by which the unemployed are supposed to maximise the sum of current and expected utility. We can assume that the provision of

[1] Gönül goes on with the statement that "The discrepancy between males and females can be explained by the fact that women have been culturally trained to stay at home and take care of children. Therefore, when they are at home they are clearly not searching; not that men work more than women, just that women "traditionally are more aware of whether they are searching for a job". (page 532)

unemployment benefits whilst unemployed raises the reservation wage, thus reducing the probability of accepting a job offer which, in turn, increases the duration of unemployment. Despite the fact that the Household Expenditure Survey is not rich enough on labour market information, the relative advantage of this database is that income variables are exhaustive and information is provided in a very detailed manner. In any case, the variable of interest in our analysis, which is the number of months searching for a job is provided for household members, in particular for women spouses.

This paper is divided up into six sections. The trends and developments of female unemployment are examined in section 2. The theoretical framework and empirical model appears in section 3. The data and definition of variables are discussed in section 4. The results are analysed in section 5. Finally, some concluding remarks are drawn in section 6.

2.Trends and developments on female unemployment.

Unemployment rates for women are not only higher than they are for men in most age groups, but they their evolution indicates that unemployment has become a women's problem, specially in the prime age (see Table 2.0). It is precisely for women 25-54 years old that the unemployment rate shows an extraordinary increase and a clearly different pattern from the female rate of other age groups . The female rate is doubled in only one decade from 1983 to1992, while the male rate for this same age group do not increase, following the same pattern of unemployment for all men, with a peak in 1985 decreasing during the recovery period lasting until 1990. In the Eighties women show a more permanent attachment to the labour force, especially during the child-bearing and child-rearing period. The labour market participation behaviour of Spanish women has in fact become closer to the European Union pattern. In fact, the probability of entering the labour market during the second half of the Eighties is systematically higher for women 25-49 in Spain than in the 10 European Community countries previous to 1986 (see De Miguel Castaño, 1991).

TABLE 2.0: Unemployment rates by sex and age.

	MEN					WOMEN				
	Total	16-19 years	20-24 years	25-54 years	55 or more	Total	16-19 years	20-24 years	25-54 years	55 or more
1983	17.1	51.1	36.4	12.4	8.8	21.3	53.0	40.1	12.3	3.0
1984	20.3	55.6	41.6	15.0	12.0	24.9	59.7	47.0	14.9	4.6
1985	20.3	52.8	42.9	15.4	11.3	25.8	59.0	48.8	16.8	4.8
1986	19.0	48.5	40.9	13.9	12.0	26.0	57.5	47.6	17.3	5.8
1987	16.0	43.9	32.0	12.0	9.4	27.9	54.8	46.7	20.7	6.5
1988	14.1	36.2	28.7	10.7	8.8	26.9	50.0	44.4	21.3	6.4
1989	12.7	30.6	26.7	9.7	8.9	24.8	43.7	39.4	21.2	6.4
1990	11.9	29.4	24.4	9.3	7.9	23.8	41.7	37.8	20.6	6.3
1991	12.8	30.9	24.6	10.3	9.1	24.4	40.3	38.0	21.7	7.1
1992	16.1	38.0	32.1	13.1	10.3	26.9	48.4	41.6	24.3	7.6

Source: INE, Encuesta de Población Activa (4th Quarter)

The unemployment rate for women is subject to an increasing trend over the 1983-1992 decade. Women's unemployment rate, conventionally measured as percentage of the labour force was 26.94% in 1992 and 21.37% in 1983. The considerable difference between this rate and the percentage of female unemployment over the total female population of working age (9.27% in 1992), is due to the relatively low female activity rate. In any case, the unemployment rate trends are concomitant with the upward change experienced by female unemployment, which increased 74.89% in the period 1983-1992 (see Table 2.1).

TABLE 2.1 : Percentage change of female unemployment by age

	1983-1992		1987-1992		1983-1986	
Age group	Thousands	Percentage	Thousands	Percentage	Thousands	Percentage
16-19	-74.4	-30.40	-104.4	-38.01	1.5	0.61
20-24	57.5	18.03	-79.6	-17.45	90.8	28.46
25-29	165.2	119.11	57.0	23.09	74.6	53.79
30-34	151.5	271.51	78.7	61.20	39.4	70.61
35-39	127.1	402.22	69.6	78.11	17.2	54.43
40-44	96.1	497.93	51.3	80.03	16.3	84.46
45-49	66.0	611.11	40.7	112.74	14.6	135.19
50-54	24.8	137.78	8.1	23.34	7.1	39.44
55-59	14.8	110.45	3.0	11.90	3.9	29.10
60-64	8.4	280.00	3.7	48.05	6.5	216.67
65-69	0.9	0.00	-0.2	-18.18	-	-
70 and over	1.9	0.00	1.9	0.00	-	-
TOTAL	639.8	74.89	129.8	9.51	272.4	31.88

Source: Own calculation from EPA, 4th quarter.

As women of the core working age enter massively the labour force, this is an important factor causing extraordinary increases on unemployment figures, especially for women 35-49 years old. But in any case, even for younger age groups, we find that women 20-24 years old experienced a change of 18.03% on their unemployment figure, over the decade. Even if during the recovery female unemployment continue increasing by 9.51% during 1987-1992, the impact of recession is indicated by the 31.88% increased in women unemployment during the previous period 1983-86.

58.44% of all unemployed women were unemployed for a year or more in 1983, this percentage being only relatively lower in 1992 (55.97%). This small decrease contrasts with the stability of female long term unemployment (two years or more), which was 35%, both at the beginning and at the end of the decade (see Table 2.2).

TABLE 2.2: Women's unemployment duration by searching time in 1992.

1992	Unemployed	Thousand persons (Percentage distribution)				
Age group		< 6 month	6-12 months	1-2 years	2 or more years	Non-classified
TOTAL	1494.1	418.8	225.7	311.0	525.3	13.7
	100.0	**28.0**	**15.1**	**20.8**	**35.2**	**0.9**
16-19	170.3	70.8	29.7	42.7	25.5	1.7
	100.0	**41.5**	**17.4**	**25.1**	**15.0**	**1.0**
20-29	680.4	200.7	104.9	141.1	227.7	6.2
	100.0	**29.5**	**15.4**	**20.7**	**33.5**	**0.9**
30-44	481.4	109.2	72.8	98.7	196.1	4.7
	100.0	**22.7**	**15.1**	**20.5**	**40.7**	**1.0**
45-54	119.6	27.6	12.2	21.5	57.2	1.0
	100.0	**23.1**	**10.2**	**18.1**	**47.8**	**0.8**
55 or more	42.4	10.5	6.1	7.0	18.8	0.1
	100.0	**24.7**	**14.3**	**16.5**	**44.3**	**0.2**

Source: INE, Encuesta de Población Activa (4th Quarter)

There is an increasing trend on the percentage of women unemployed with previous labour market experience. The percentage of women unemployed who were previously working changed from 43.21% in 1983 to 71.29% in 1992. The percentage change of unemployed women with labour market experience or previously working is considerably higher due to the low levels of departure. Note that this trend is maintained for the younger age groups too. First job seekers grew, on the other hand, for older women.

Temporary contracts play an important role in Spain in the explanation of unemployment spells. As Table 2.3 shows, near 90% of women on temporary contracts did not find a permanent job (indefinite contract) in contrast with less than 1% of women who did not want a permanent job[2].

[2]The temporary contracts differential between men and women is an adequate indicator of labour market inequality, according to Archano (1993), as they are very sensitive to recession, given that they are cheap and easily eliminated during the downswing. In fact, they were promoted in order to make more flexible the firing process, which is quite expensive in terms of time and cost in Spain.

TABLE 2.3 : Reason for temporary contract for women.

Reason	1987		1992	
	Thousands	Percentage Distribution	Thousands	Percentage Distribution
Total	564.9	100.00	1142.5	100.00
Indefinite contract not found	496.3	87.86	990.3	86.68
Indefinite contract rejection	5.1	0.90	7.2	0.63
Other reasons	58.9	10.43	107.1	9.37
Not known	4.6	0.81	37.9	3.32

Source: INE, Encuesta de Población Activa (4th Quarter)

In fact, the increase of temporary contracts for women is, according to Toharia (1991) an important determinant of the increase of long-term unemployment of women with previous labour market experience, even if their participation on long-term female unemployment decreased over the period 1987-1990.

It is also interesting to consider the relationship between employment sector and temporary contracts. The change of temporary contracts by industry for women appears in Table 2.4.

Table 2.4 : Percentage change of women employees by indefinite/temporary employment by industry (1987-1992)

	TOTAL		INDEFINITE		TEMPORARY	
	Thousands	Percentage	Thousands	Percentage	Thousands	Percentage
Total	665.9	28.35	-9.9	-0.53	675.8	135.84
Agriculture	10.8	20.53	-7.3	-39.67	18.1	52.92
Manufacturing	19.2	3.83	-92.5	-23.49	111.7	104.10
Construction	22.4	151.35	8.0	72.73	14.4	378.95
Services	613.6	34.47	81.8	5.73	531.8	151.04

Source: INE, Encuesta de Población Activa (4th Quarter)

During 1987-1992, the 34.47% female employment increase on services is mainly due to the increase of temporary contracts (151.04%). Despite the decrease of female employment on

indefinite contracts in manufacturing, a small increase of 3.83% has occurred, due to the significant increase of temporary contracts for women in this sector.

Finally, personal characteristics play also an important role on unemployment duration. García Serrano and Toharia (1994) present a remarkable result related to the estimated higher probability of staying in the unemployment pool for women of higher education, in relation of women with secondary education. Their explanation concerns not only the personal characteristics of the unemployed, but also the educational requirement of the new jobs generated in Spain at the time, which really were low qualified jobs. Nevertheless, those results need some qualification according to their authors, as important determinants on the probability of exiting the unemployment pool were not considered. Previous labour market experience, unemployment duration or the fact of receiving unemployment benefits can modify those preliminary results.

3. The model

3.1. Theoretical framework.

The theoretical framework is broadly speaking the standard job search model (Holzer, 1988). The unemployed are supposed to maximise the sum of current and expected utility, which is a function of the reservation wage, the job offer probability function and the wage offer distribution. The theoretical model assumes that the provision of unemployment benefits and the income whilst unemployed raises the reservation wage, thus reducing the probability of accepting a job offer which, in turn, increases the duration of unemployment. Consequently, women without labour market experience, and hence not entitled to unemployment benefits, deserve a special analysis[3].

The institutional setup greatly contributes to reduce the randomness in the job search process (Moltó et al., 1994). As different job search modes involve different monetary and time costs, job search through relatives, which is presumably the most frequently used job search method for married women, will increase the opportunities of definitely finding a job if the spouse is on employment, and thus exiting the unemployment pool earlier on than married women living in households with the principal earner unemployed[4]. In the last case, the opportunity cost of job search, taking into account the alternative uses of time within the household for a married woman, may normally be so high that she decides not to look for a job intensively. Thus increasing their unemployment duration.

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[3] According to Blanco (1992), the unemployment benefit can influence the flow between unemployment and employment, but also would have an impact on the participation decision and hours, given that as it is approximately proportional to previous earnings. Consequently, expected unemployment benefits will increase with working hours.

[4] Some evidence on the probability of exiting the unemployment pool decreasing for women when living in households with other family members on unemployment and, conversely, the probability of exiting increasing when living in households with other family members on employment, is provided in Toharia (1993).

According to Holzer (1988), the unemployed will choose a job search mode and search intensity which maximises current and expected utility. Current utility, on the one hand, depends on income minus the monetary cost of job search and leisure minus the time cost of job search. Expected utility, on the other hand, depends on the probability of being employed and unemployed in the future. These probabilities are a function of the job offer probability function and the wage offer distribution. The expected value of the utility function of being employed in the future, given the reservation wage and the utility of being unemployed in the next period are the multiplying factors of the probability of employment and unemployment, respectively. More formally, the unemployed maximizes expected utility function U_t in t:

$$U_t = \mathbb{V}\,(Y-\sum c_i B_i,\ L-\sum B_i) + \pi(B_1,B_2)\left[\ 1-f(\tilde{w})\ \right]E\psi\left[\ (w)/\tilde{w}\ \right] + \{1-\pi(B_1,B_2)\left[\ 1-f(\tilde{w})\ \right]\}\ U_{t+1}$$

where $\tilde{w}$ is the reservation wage, π is the probability density function of job offers, $f(w)$ the wage offer distribution, B_i the search intensity of the i-method, which is associated to a given monetary cost (c_i), $\mathbb{V}$ current utility, ψ is the utility function of employment in t+1, Y is income and L leisure. In addition, the productivity of each search method decreases when the cost increases, the cost and productivity of each search method varying across individuals, according to their socioeconomic characteristics.

On the other hand, according to Andrés, García and Jiménez (1989), the analysis of unemployment duration determinants is equivalent to analysing the probability of exiting the unemployment pool, which can be decomposed into the probability of receiving a job offer with an associated wage offer and the probability of accepting it. The probability of exiting the unemployment pool for married women positively relates to the employment status of other family members, in particular to employed husbands, which clearly increases the probability of women receiving a job offer. It negatively depends on the presence of small children in the household, given that the reservation wage will in that case be higher than if there are no children in the household, and this will decrease the probability of accepting a wage offer. The unemployment benefits will have a similar effect on the probability of accepting a wage offer, as it was previously the case that the reservation wage will be higher if the unemployed receive benefits. Personal characteristics as indicators of labour supply factors like age and educational attainment will not have an unambiguous effect on the probability of unemployment duration. Education increases the probability of receiving a job offer, ceteris paribus, but it also decreases the probability of accepting a wage offer, because the reservation wage will also be higher the higher the educational attainment. On the contrary, age will decrease the probability of receiving a job offer and, at the same time, it will decrease the reservation wage, thus increasing the probability of accepting a wage offer. Finally, demand side factors like occupation, professional status and location (as an indicator of regional unemployment rates) are expected to have a significant impact on unemployment duration through the probability of receiving a job offer.

3.2. Empirical model.

Given that our variable of interest is basically the length of time that elapses from the beginning of the unemployment spell until the measurement is taken, the empirical model of interest is, in general, a parametric model of duration.

According to the proportional hazard model, the spell length of unemployment is represented by a random variable (see for example Greene, 1993). Regression analysis can be applied to the sample of observed spells. Unfortunately, in our case all sample observations are incomplete spells. In fact, the available data implies that the measurement was made while the process was ongoing. Consequently, it is not possible to calculate expected unemployment duration conditioned on a set of covariates whose values were measured at the observation period. We concentrate instead on the differential impact of the unemployment duration determinants on unemployment duration for women living in different family environments. We find this analysis of interest because we assume that the process of accumulation of information about the opportunity of finding a job will be different to the insiders having one or more family members on employment from the outsiders living in households with unemployed members only.

In order to draw inferences for the population of women participants and non-participants, employed and unemployed, we estimate two logit models correcting for sample selection bias.

This is followed by the specification of an ordered logit model for estimating the impact of several determinants on the probability of distribution of unemployment duration.

The available information for testing the influence of the main factors on unemployment duration, requires an econometric specification of the general class of discrete choice models (see Maddala, 1983 and Amemiya, 1981).

Given that unemployment duration is considered here in a discrete form (by rank), the specified equation for the dependent variable is of the ordered logit class models. Accordingly, we can consider the following linear relationship between the vector of independent variables x and the unobserved dependent variable y :

$$y^* = bx + u \quad , \qquad (1)$$

following u the logit distribution with $E(u) = 0$, and $E(u) = 1.81$.

The observed counterpart to y^* is y , in our case the rank of the unemployment duration. Each woman is classified accordingly. For example, if unemployment duration of woman i is less than MU(0), the variable y is equal to zero, and so forth.

$$y = 0 \text{ with } y^* < MU(O)$$

$$y = 1 \text{ with } MU(O) \leq y^* < MU(1)$$
$$y = 2 \text{ with } MU(1) \leq y^* < MU(2)$$
$$y = 3 \text{ with } MU(2) \leq y^* < MU(3)$$
$$y = 4 \text{ with } MU(3) \leq y^* < MU(4)$$

The MU(j) coefficients are the quantitative limits of each rank. Given that not all the parameters in equation (1) are identified, they can be treated as free parameters, and apply the normalization rule MU(0) = 0.

The probability that the woman i is in j unemployment duration step is

$$\text{Prob}[y = j] = [1/[1+\exp(bx - MU(j))]] - [1/[1+\exp(bx - MU(j-1))]] . \quad (2)$$

The expression (2) allows analysing the impact of different female characteristics on the probability distribution of unemployment duration.

4. Data and variables.

4.1. Data.

Recent data containing information on labour force participation and earnings and socioeconomic characteristics of households is available in the Household Expenditure Survey (1990-91) (EPF). This survey is a very good data source for income and expenditure, but it contains also relevant information to study the labour market situation of specific groups like women spouses. Given that in this case personal characteristics are not the only determinants of the situation of women in the labour market, but family factors play also a very important role, this data source is unique in that sense. We can then use the subsample of all women spouses which is formed by 14,067 observations to estimate a participation equation, the subsample of those women spouses who are either employed or unemployed (3,598 observations) to estimate an unemployment equation and, finally the subsample of those unemployed with previous labour market experience (617) to estimate the duration of unemployment. Consequently, the estimated participation rate for women spouses, according to the EPF sample was 26.1% in 1990-91 and the unemployment rate was 18.5% (617 unemployed with previous labour market experience + 50 unemployed without previous labour market experience).

In order to show that our EPF subsample of women spouses is adequate to draw inferences applicable to the population of married women in Spain, some comparisons are next established with the most relevant data source for labour market variables: the labour force survey (EPA). (see Table 4.1and 4.2)

Table 4.1. : Active and unemployed women spouses.

	Active	Unemployed	Unemployment

			Rate
EPA 1991	2,477,000	479,100	19.34
EPF 1990-91	3,598	667	18.54

Source: Own calculation from EPA, 1st quarter 1991 and EPF 1990-91.

There are minor discrepancies in the unemployment rates for women spouses according to our sample estimate and the labour force estimate, but greater discrepancies are found in the distribution of women spouses by unemployment duration. As table 4.2 shows, very long-term unemployed women spouses are under-represented in our EPF sample, while very short-term unemployed are over-represented. Nevertheless, the percentage of women searching for more than one year in our sample (48.4%) is not much lower than this same percentage in the case of the labour force (59.2%).

Table 4. 2. :Unemployment duration of women spouses

Months searching	**EPF 1990-91**		**EPA 1991**	
	Women spouses	Percentage distribution	Women spouses (Thousands)	Percentage distribution
< 6 months	225	33.7	126.6	26.3
6-11 months	119	17.8	65.5	13.6
12-24 months	178	26.7	96.2	19.9
>24 months	145	21.7	189.7	39.3
Non-classified	-	-	4.2	0.9
Total	667	100.0	482.3	100

Source: Own calculation from EPA, 1st quarter 1991 and EPF 1990-91

4.2. Variables.

The dependent variables are defined as follows:

(i) Labour market participation is a dummy variable which takes value one if the women participates and zero for non-participants in the previous week.

(ii) Unemployment is a dummy variable equal to one if the woman is unemployed and zero otherwise.

(iii) Unemployment duration is quantified by rank, taking values from 0 up to 4; It takes value 0 if she is searching up to six months time; It takes value 1 if she was searching from 7 to 12 months; It takes value 2 if searching time is between 13 and 18 months, 3 between 19 and 24 months, and finally, 4 for more than 24 months.

The explanatory variables are defined as follows:

(i) Estrato is a dummy variable taking value one if the woman lives in a town of more than 20,000 inhabitants and zero otherwise (ESTRATO).

(ii) Number of household earners (PERC) is a quantitative variable, which is equal to the total number of household earners, excluding the wife.
(iii) Household income is a quantitative variable (RENTAM), measuring the household income except labour income of the wife.
(iv) Unemployment benefit is a dummy variable taking value one if the woman receive unemployment subsidy and zero otherwise (IMDES).
(v) Region of residence is a set of six dummies:
-Madrid (reference category).
-Northwest: Galicia, Asturias, Cantabria (NOROESTE).
-Northest: País Vasco, Navarra, Rioja, Aragón (NORESTE).
-Center: Castilla-León, Castilla-La Mancha, Extremadura (CENTRO).
-East: Cataluña, C. Valenciana, Baleares (ESTE).
-South: Andalucia, Murcia, Canarias, Ceuta y Melilla (SUR).
(vi) Occupation in the latter job, comprises a set of seven dummies:
-professionals, technicians and armed forces officials, legislators, senior government officials and managers (reference category),
-clerks (OCU3),
-service and sales workers (OCU4),
-agricultural and related workers (OCU5),
-craft workers, plant and machine operators and assemblers (OCU6).
(vii) Socioeconomic category of latter job consists of three dummies:
The first takes value one if the woman was an employer in the previous week and zero otherwise (reference category), (SIT2) takes value one if the woman was a family worker and zero otherwise, (SIT3) takes value one if the woman is employee.
(viii) Education is a set of four dummies, the reference category being under primary education.
- Primary education (ESTUD2),
-Secondary education(ESTUD3),
-Higher education (ESTUD4).
(ix) Type of household is a dummy variable taking value one for couples with children and zero otherwise (TIPOHOG).
(x) Age is a set of four dummies: women 28-39 (EDAD2), women 40-51 (EDAD3), women 52-65 (EDAD4) and women 16-28, which is the reference category
(xi) SITCF is a dummy variable taking value one if the principal earner is on employment and zero otherwise.

5. Results.

5.1. Participation equation.

The estimated percentage of women participants living with their couple is 26.1%. Most coefficients are significant at 5% level , as table 5.1. shows. First, There are significant differences on the probability of participation by region. All, except the Central and South regions have a

positive impact on the probability of participation with respect to the reference category which is the region of Madrid. In any case, the impact is comparatively greater in the East and Northwest, than in the Northeast. Table 5.1

In relation to socioeconomic characteristics of the family, we find that when the principal earner is on employment (SITCF), the probability of female participation does not significantly differ from the situation where the principal earner is not on employment, despite the fact that when the number of earners in the household increases the probability of participation of women increases too. This can capture that for any given total household income level, the contribution of each household member is smaller and, consequently, the participation of additional workers is necessary to maintain the living standard of the household. This is the typical case where the additional worker effect will predominate over the discouraged worker effect of the secondary earner. In any case, the probability of participation significantly decreases when other family income (RENTAM) increases.

Finally, the personal characteristics of women which are basic to the participation decision, age and education have the expected impact. The age variable has a significant negative effect on the probability of participation and educational attainment has a positive influence.

5.2. Unemployment equation.

The estimated coefficients of the binomial logit model of unemployment, unconditional on participation appear in table 5.2. The coefficients corresponding to both personal characteristics and environmental variables are significant at the 5% level. Tabla 5.2

First, if the husband is on employment (SITCF) the probability of unemployment for women decreases in relation to having a husband not in employment. This result support our initial hypothesis about the greater opportunities for finding a job for women who are in close contact with principal earners active in the labour market.

Second, in relation to personal characteristics, the results show that the educational attainment (ESTUD) has a negative impact on the probability of unemployment. In addition the estimated coefficients increase in absolute value with educational level, which implies that women with higher education have a comparatively lower probability of unemployment than secondary educational level, always in relation to the reference category, which is under primary school educational attainment. Nevertheless, when comparing the previous estimates with all conditional estimated coefficients of the educational dummies, appearing in table 5.3, it is very interesting to note that the negative impact on the probability of unemployment or the positive effect of education in order to avoid unemployment, so to speak, is considerably lower if we do not restrict our inferences to women participants only than if we do. In other words, the positive impact of education for married women decreasing the probability of unemployment, irrespective of their decision to participate in the labour market, is not so much, as it seemed at the first sight.

Consequently, education is definitely a safeguard for women against unemployment, but even so, our results show that once the sample selection bias is taken into account, the educational safeguard is weaker. The straightforward implication of this finding is that married women with higher educational attainment can also be discouraged from labour market participation in the presence of high unemployment rates. Consequently, only unconditional estimates of education will give us a more complete picture of the real impact of education on the probability of unemployment. The emphasis legitimately put by some authors on the importance of education of women both for labour market participation, and employment status (e.g. Novales, 1989) should now be reconsidered on the light of the above results.

The age dummies (EDAD), on the other hand show also a significant negative impact on the probability of unemployment, the estimated coefficients also increasing in absolute value, thus implying that the higher the age the smaller the probability of unemployment. Given that the age variable can be considered in our model a proxy for experience, apart from the cohort effect itself, we can interpret both the sign and the absolute values as experience effects. If we compare the unconditional estimates of the age dummies with the conditional estimates appearing in table 5.3, as we did before with the educational dummies, a similar conclusion can be drawn. Also in this case, where the differences between the unconditional (corrected for selectivity bias) and the conditional estimates are quite important, we can draw the interesting conclusion that the age variable, as an approximate indicator of experience, has a less negative impact on the probability of unemployment in any given situation, irrespective of participation.

Finally, there are significant differences in the Northwest and East regions, with respect to the region of Madrid, having a significant negative impact on the unconditional probability of unemployment for women spouses. In addition, we find that the probability of unemployment is significantly higher in medium and large towns than in small towns.

5.3. Unemployment duration equation.

The estimated coefficients of the ordered logit model for unemployment duration steps appear in table 5.4.

Neither the regional variables nor the size of the town (ESTRATO) have a significant contribution to increasing duration of unemployment in relation to their corresponding reference category (region of Madrid and small towns under 20,000 inhabitants).

Similarly, neither environmental socioeconomic factors nor personal characteristics like educational attainment do significantly differ in their contribution to unemployment duration. In other words the seems to be no difference on unemployment duration of a woman with secondary education from a woman with who is under primary school level, which is the reference category. It has to be noted, that the t-ratio corresponding to the coefficient of the dummy for higher education (ESTUD4) experiences a considerable increase in their absolute value up to -0.70, and

that, in addition, the coefficient appears with the correct sign, which should be negative. In any case, the age variable dummies (EDAD2, EDAD3 and EDAD4) do not show significant differences with respect to the youngest age group (under 28 years old). On the other hand, our initial presumption on the negative impact on duration of women living in households with a partner on employment, does not show according to our estimates any significant influence (the t-ratio of SITCF has an associated p-value of 0.506).

Labour market factors have a significant impact on unemployment duration. Occupational category (OCU variables) have all, but one, negative significant contributions to unemployment duration. In particular, agricultural and related workers is the occupational group which appears with a more negative estimated coefficient in relation to the reference category, which is formed by professionals, legislators and managers. The same happens with socio-economic situation (SIT dummies). Both employees and family workers have a negative impact on unemployment duration in comparison with self-employed and employers, which is the reference category. It is interesting to note that this result is in line with the expectation of a greater protection from unemployment if the woman is a labour market dependent than if the woman is on its own on the labour market, especially if she, as most probably is the case, depends herself on a small business.

Finally, the fact that the unemployed woman receive unemployment benefit (see the variable IMDES) has a positive impact on unemployment duration. This is a standard result which can be interpreted in terms of the increase of the reservation wage when the unemployed is subsidized, thus increasing the average duration of unemployment.

6. Concluding remarks.

We can predict that, irrespective of labour market participation, any married woman is less likely to become unemployed the more educated she is. Nevertheless, our main findings show that the positive effect of education is improperly enhanced by only fixing our attention to women that already are participating in the labour force. Gracia-Díez (1991) found that there are interaction effects between education and age on the probability of unemployment, suggesting that some highly educated women spouses may drop out of the labour force simply because they do not find a job, married women being in any case more sensitive to the discouraged worker effect than single women are.

The most interesting result found in this paper is related to the differences in the estimated coefficients measuring the impact of age and educational attainment on the probability of unemployment for women spouses, when controlling for the sample selection bias. In fact, given that women non participants include women that do not genuinely want to participate as well as women who are discourage and, consequently could be considered as unemployed, the real impact of the age and education factors would be in between both estimates, in any case being lower than the conditional estimates obtained in the unemployment equation in table 5.3. In other words, if all non participants women spouses belong to the first class, conditional estimates would give us the

complete view, because in this case the participation decision would be independent of the probability of unemployment.

Even if estimates conditioned on participation, do not tell us the whole story of the impact of education on unemployment, a more complete picture is offered. We thus belive it is important to think in that way if effective positive action measures have to be adopted in order to achieve the full integration of women in the labour force.

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TABLE 5.1:PARTICIPATION EQUATION

Binomial Logit Model with sample selection

Variable	Coefficient	Std. Error	t-ratio	Prob|t|òx	Mean of X	Std.Dev.of X
Constant	-0.93581	0.1726	-5.422	0.00000		
Estrato	-0.92948E-01	0.4993E-01	-1.862	0.06265	0.73292	0.44245
Perc	0.10248	0.2775E-01	3.693	0.00022	1.6844	0.93078
Rentam	-0.22941E-06	0.2229E-07	-10.290	0.00000	0.21578E+07	0.16612E+07
Noroeste	0.63896	0.1300	4.915	0.00000	0.11644	0.32077
Noreste	0.34181	0.1281	2.669	0.00761	0.15291	0.35991
Centro	0.13508E-01	0.1253	0.108	0.91414	0.25798	0.43754
Este	0.71485	0.1248	5.727	0.00000	0.18064	0.38473
Sur	0.20182	0.1244	1.623	0.10469	0.25315	0.43483
Estud2	0.73854E-01	0.6148E-01	1.201	0.22966	0.63972	0.48010
Estud3	0.98007	0.8966E-01	10.930	0.00000	0.80045E-01	0.27137
Estud4	2.2830	0.1038	22.000	0.00000	0.62771E-01	0.24256
Tipohog	0.20526	0.5313E-01	3.864	0.00011	0.25535	0.43607
SitCF	0.80980E-01	0.6334E-01	1.278	0.20109	0.74892	0.43365
Edad2	-0.41463E-01	0.7911E-01	-0.524	0.60018	0.30284	0.45950
Edad3	-0.50714	0.8490E-01	-5.973	0.00000	0.30205	0.45917
Edad4	-1.3427	0.9321E-01	-14.405	0.00000	0.32558	0.46861

N = 14067
Log-Likelihood..... -6974.083
Restricted (Slopes=0) Log-L. -7998.386
Chi-Squared (16)..... 2048.605
Significance Level..... 0.0000000

TABLE 5.2: UNEMPLOYMENT EQUATION

Binomial Logit Model with sample selection
Sample Selection Model
Logit selection equation based on participation

Variable	Coefficient	Std. Error	t-ratio	Prob|t|òx	Mean of X	Std.Dev.of X
Constant	0.88659	0.1120	7.914	0.00000		
Estrato	0.40051E-01	0.2077E-01	1.928	0.05384	0.75486	0.43023
Noroeste	-0.14898	0.5737E-01	-2.597	0.00941	0.14036	0.34740
Noreste	-0.78789E-01	0.5348E-01	-1.473	0.14072	0.15509	0.36204
Centro	-0.62214E-01	0.5145E-01	-1.209	0.22661	0.21234	0.40902
Este	-0.12633	0.5569E-01	-2.269	0.02329	0.23513	0.42414
Sur	0.26030E-02	0.5221E-01	0.050	0.96023	0.22679	0.41882
Estud2	-0.49354E-01	0.2952E-01	-1.672	0.09455	0.55531	0.49700
Estud3	-0.22969	0.4439E-01	-5.175	0.00000	0.13924	0.34625
Estud4	-0.44206	0.6528E-01	-6.772	0.00000	0.16620	0.37231
Tipohog	0.42090E-02	0.2069E-01	0.203	0.83880	0.31184	0.46331
SitCF	-0.11415	0.2671E-01	-4.274	0.00002	0.84380	0.36309
Edad2	-0.63215E-01	0.2779E-01	-2.275	0.02290	0.45636	0.49816
Edad3	-0.77289E-01	0.3659E-01	-2.112	0.03466	0.28155	0.44982
Edad4	0.73205E-02	0.5953E-01	0.123	0.90213	0.14758	0.35473
LAMBDA	-0.34846	0.7388E-01	-4.716	0.00000	1.0865	0.40161

N = 3598
Log-likelihood = -0.1545996E+04
Amemiya Pr. Criter.= 0.8682578E+00
Akaike Info.Crit. = 0.1395100E+00
Selection Criterion (Rho)..... -0.80314

TABLE 5.3: UNEMPLOYMENT EQUATION

Binomial Logit Model

Variable	Coefficient	Std. Error	t-ratio	Prob¦t¦òx	Mean of X	Std.Dev.of X
Constant	0.17779	0.3390	0.524	0.59999		
Estrato	0.13510	0.1085	1.245	0.21311	0.75486	0.43023
Noroeste	-0.31602	0.2828	-1.117	0.26381	0.14036	0.34740
Noreste	-0.19307	0.2774	-0.696	0.48651	0.15509	0.36204
Centro	-0.38792	0.2749	-1.411	0.15825	0.21234	0.40902
Este	-0.13672	0.2668	-0.512	0.60837	0.23513	0.42414
Sur	0.22552	0.2668	0.845	0.39799	0.22679	0.41882
Estud2	-0.32528	0.1403	-2.318	0.02046	0.55531	0.49700
Estud3	-0.76337	0.1877	-4.068	0.00005	0.13924	0.34625
Estud4	-1.6061	0.2160	-7.434	0.00000	0.16620	0.37231
Tipohog	0.27834	0.1038	2.681	0.00734	0.31184	0.46331
SitCF	-0.76040	0.1248	-6.095	0.00000	0.84380	0.36309
Edad2	-0.38839	0.1351	-2.876	0.00403	0.45636	0.49816
Edad3	-1.0825	0.1639	-6.606	0.00000	0.28155	0.44982
Edad4	-1.3457	0.1931	-6.970	0.00000	0.14758	0.35473

N = 3.598
Log-Likelihood..... -1594.412
Restricted (Slopes=0) Log-L. -1725.080
Chi-Squared (14)..... 261.3369
Significance Level..... 0.0000000

TABLE 5.4: UNEMPLOYMENT DURATION EQUATION

Ordered Probit Model

Variable	Coefficient	Std. Error	t-ratio	Prob¦t¦òx	Mean of X	Std.Dev.of X
Constant	4.1592	0.8230	5.054	0.00000		
Estrato	0.36070	0.2173	1.660	0.09697	0.75365	0.43124
Noroeste	0.25625	0.5265	0.487	0.62649	0.11021	0.31341
Noreste	0.62973	0.5373	1.172	0.24120	0.13290	0.33974
Centro	0.35950	0.5081	0.708	0.47920	0.14587	0.35326
Este	0.34637	0.4908	0.706	0.48039	0.24797	0.43219
Sur	0.32062	0.5073	0.632	0.52738	0.32901	0.47024
Ocu3	-0.77123	0.3559	-2.167	0.03022	0.32091	0.46720
Ocu4	-0.52597	0.3904	-1.347	0.17794	0.11507	0.31937
Ocu5	-1.3368	0.4559	-2.932	0.00337	0.16207	0.36882
Ocu6	-0.76199	0.3768	-2.022	0.04314	0.20746	0.40581
Sit2	-4.1653	0.8863	-4.700	0.00000	0.64830E-02	0.80321E-01
Sit3	-4.2905	0.4015	-10.687	0.00000	0.84117	0.36582
Estud2	0.42737E-01	0.2847	0.150	0.88068	0.63047	0.48307
Estud3	-0.57233E-01	0.3847	-0.149	0.88174	0.12156	0.32704
Estud4	-0.70259	0.4991	-1.408	0.15924	0.51864E-01	0.22193
Edad2	-0.18030	0.2382	-0.757	0.44905	0.48784	0.50026
Edad3	-0.26970	0.2956	-0.913	0.36150	0.20097	0.40105
Edad4	0.84123E-01	0.3550	0.237	0.81268	0.13290	0.33974
Tipohog	-0.31389E-01	0.1930	-0.163	0.87080	0.38250	0.48639
SitCF	0.15209	0.2292	0.664	0.50698	0.74392	0.43682
Imdes	0.67286	0.1837	3.663	0.00025	0.61426	0.48716
MU(1)	1.0945	0.9076E-01	12.059	0.00000		
MU(2)	1.7899	0.1176	15.217	0.00000		
MU(3)	2.6151	0.1695	15.426	0.00000		

N = 617
Log-Likelihood..... -736.2745
Restricted (Slopes=0) Log-L. -894.0546
Chi-Squared (21)..... 315.5602
Significance Level..... 0.0000000