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Departamento de Economía
Universidad Carlos III de Madrid
Calle Madrid, 126
28903 Getafe (Spain)
Fax (341) 624-98-75

THE FALL IN CONSUMPTION FROM BEING UNEMPLOYED IN PORTUGAL AND SPAIN

Sonsoles Castillo, Juan J. Dolado and Juan F. Jimeno*

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Keywords: Unemployment, Consumption, Household Budget Surveys.

* Castillo, FEDEA; Jimeno, Universidad de Alcalá y FEDEA; Dolado, Department of Economics, Universidad Carlos III de Madrid. E-mail: dolado@eco.uc3m.es.

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The Fall in Consumption from Being Unemployed in Portugal and Spain*

Sonsoles Castillo[†] Juan J. Dolado[‡]
Juan F. Jimeno[§]

Abstract

In Portugal real wage flexibility, at the macroeconomic level, is noticeably higher while unemployment duration is lower when compared to Spain. This suggests that the hardship of being unemployed is higher in Portugal. Unemployment benefits and family insurance, which are the main buffer against unemployment and have played different role in both countries, can explain this disparity. In this chapter we present some estimates of the loss of consumption suffered by unemployed workers relative to employed workers in Portugal and Spain. The estimates come from comparable data sets (cross-sections of the Household Budget Surveys). Our results confirm our prior: this loss is much more sizeable in Portugal.

1 Introduction

In a previous chapter we have argued that the Portuguese labour market shows a low degree of real wage rigidity at the macroeconomic level and that

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[†]FEDEA.

[‡]Universidad Carlos III and CEPR.

[§]Universidad de Alcalá, FEDEA, and CEPR.

persistence mechanism have played a lesser role in the Portuguese labour market dynamics. Moreover, unemployment spells last longer in Spain than in Portugal (Bover, García-Perea, and Portugal, 1998, Table 2). At a first sight comparison (Blanchard and Jimeno, 1995), the only labour market institutional feature which could explain these disparities is unemployment insurance, which in Spain has been relatively generous since the late early eighties, while in Portugal was almost non-existent until the early nineties.

The reason why unemployment benefits are thought to affect real wage rigidity, the persistence of shocks to unemployment, and unemployment duration are well-known: in insider-outsider models real wages are determined by the insider power in wage setting and by the competitiveness of outsiders (long-term unemployed), which is related to their skills and job search effectiveness. The higher the unemployment benefits are, the less intense job search is, and the longer unemployment duration is. As unemployment duration increases, unemployed skills depreciate and their competitiveness in the labour markets decreases. Thus, it is not surprising to see some measures of unemployment benefits entitlements (replacement rates, duration, etc.) in cross-section regressions designed to identify the sources of unemployment differentials across countries, or in the estimation of unemployment duration models with individual data.¹

In some countries, however, unemployment benefits are not the only buffer against unemployment. For instance, in Spain, family structure has adapted to high unemployment, and, despite unemployment rates above 20% in the eighties and nineties, the proportion of families which do not receive any regular source of income is below 5% (see Blanchard et al. 1995, annex 1). Thus, income redistribution within families is also playing some role at slowing down search behaviour, at least, among second income earners (other than breadwinners).

Here, we adopt a complementary approach at establishing the effects of unemployment on search and, hence, wage determination. It has been often argued that consumption is a more accurate measure of welfare than income at a given moment in time (Poterba, 1989, Cutler and Katz, 1992). In fact, this is obvious from the permanent income hypothesis. Thus we propose to proxy the unemployed pressure on wage determination and on flows out of

¹See, for example, Layard, Nickell and Jackman (1996) and Alba-Ramirez (1996), for cross-section regressions, and Bentolila, Bover, and Arellano (1998), for an estimation of the effects of unemployment benefits on the unemployment hazard rate from Spanish individual data.

unemployment (and, hence, on unemployment duration) by the extent to which unemployment reduces consumption. The higher unemployment benefits and the family transfers are, the smaller the consumption losses from unemployment are, and the "easier" to remain unemployed is. Also, the higher the turnover rate and the higher the discount rate are, the smaller the consumption losses from unemployment are.² Following this approach, section 2 presents the data and the empirical exercise to be performed, section 3 reports the estimates of the consumption losses stemming from unemployment, and section 4 draws some concluding remarks.³

2 The Data and the Specification

We estimate the consumption losses from being unemployed relative to being employed using data from the Spanish and Portuguese Household Budget Surveys. Both surveys were conducted by the Statistical National Institutes to update the consumption basket for the CPI. The reference period for Portugal is 1989-90 where is 1990-91 for Spain. The reference period of the surveys must be borne in mind. At that time, unemployment benefits in Portugal were almost non-existent, while in Spain they reached its maximum generosity (since then, there were reductions in the replacement rate and in the eligibility requirements in 1992-93).

The Portuguese contains information on 10,648 households, while the Spanish survey covers 21,155 households. The questionnaire of both surveys inquires about household composition, individual characteristics of the household's members and detailed consumption patterns. From these surveys we extract cross-sectional samples with information on consumption of both durables and non-durables goods, on some individual characteristics (sex, age, educational attainment, household composition), and employment status (employed, unemployed without job past experience -and, therefore, no entitlement to unemployment benefits-, and unemployed with past job experience -and, therefore, likely to have received or being receiving unemployment benefits).

Table 1 reports some descriptive statistics of the samples to be used for

² A simple theoretical underpinning of the previous effects is offered in the Appendix.

³ A precursor of our approach is Gruber (1997) who estimates the effects of unemployment insurance entitlement on food consumption in the US. He finds that, in the absence of unemployment insurance, the consumption of the unemployed would fall by 22%.

estimation. As seen in the Table, they resemble well the main features of both labour markets at the time of the surveys. Educational attainments were higher in Spain, where almost 30 per cent of the population had completed at least secondary studies, and around 9 per cent of the population held a university degree. In contrast, in Portugal, the proportion of the population with at least secondary studies and with a university degree were 21 per cent and around 4 per cent, respectively. In the samples, the participation rate was higher in Portugal (62.5 per cent versus 56.2 per cent in Spain) while the unemployment rate was much lower (5.9 per cent versus 16.1 per cent in Spain), which is not too dissimilar to the situation estimated by the Labour Force Surveys in both countries.

Table 1. Descriptive Statistics

Variable	Portugal	Spain
Age	38.8	37.9
(Standard deviation)	(14.6)	(14.5)
Male	10,352 (47.5%)	22,982 (49.6%)
Female	11,455 (52,5 %)	23,361 (50.4%)
Primary Studies	17,234 (79.0%)	32,703 (70.6%)
Secondary Studies	3,790 (17,4 %)	9,543 (20.6%)
University degree	783 (3,6%)	4,097 (8.8%)
Employed	12,830 (58,8%)	21,844 (47.1%)
Unemployed (with past job experience)	388 (1.8%)	1,066 (2.3%)
Unemployed (without past job experience)	413 (1.78%)	3,141 (6.8%)
Out of the labour force	8,176 (37.5%)	20,292 (6.8%)
Consumption per capita. Durables (logs)	12.5	11.6
(Standard deviation)	(3.0)	(1.4)
Consumption per capita. Non durables (logs)	15.6	13.1
(Standard deviation)	(.7)	(.5)
Number of observations (N)	21,807	46,343

Note: Consumption per capita is on a yearly basis and in Portuguese escudos and Spanish pesetas, respectively.

In the Spanish case, there is a simplified version of the survey which is performed quarterly on a longitudinal basis. This is clearly superior for the kind of exercise that we performed below, although in this simplified version there is no information on many individual characteristics (like educational

attainment) which could be relevant for the estimation. This longitudinal survey allows to construct a sample with a panel structure which could be used to estimate more accurately, not only the consumption losses from being unemployed relative to being employed, but also the fall in consumption from becoming unemployed.⁴ Unfortunately, a similar longitudinal survey is not available for Portugal. Thus, for the sake of comparability, we are led to use the cross-sectional samples described above.

The regression specification for the empirical analysis is a OLS cross-section regressions of the form

$$c_i = \gamma_1 X_i + \gamma_2 \lambda_i + \epsilon_i \quad (1)$$

where c is (log) consumption per capita (household consumption divided by the number of the members of the household) of either durables or non-durables goods, X is a vector of individual characteristics, and λ is a vector of dummies for employment status (employed, unemployed with past job experience, unemployed without job experience, and out of the labour force).⁵

We are interested in the difference between the value of γ_2 in Spain and Portugal. Were our presumption right, we would expect to find that the consumption losses from unemployment are much larger in Portugal (where unemployment benefits were lower and eligibility rules more restrictive, family structure seems to have remained stable, despite unemployment fluctuations, and the turnover rate is low) than in Spain (where, unemployment benefits were more generous, the family plays a role as buffer against unemployment, and turnover rate is very high due to a high proportion of fixed-term contracts -over 30 per cent)⁶

The use of OLS is admittedly a somewhat crude estimation procedure since the employment/unemployment status could be partially endogenous to the consumption decision. However, in the absence of convincing instrumental variables, we prefer to report these estimates though they ought to be

⁴For an analysis of poverty dynamics in Spain and the effects of employment status on the transitions in and out of poverty using this longitudinal data set, see Cantó (1996).

⁵The distinction between unemployed with and without past job experience is relevant, since both in Spain and Portugal, it is required to have had some employment spells to be entitled to receive unemployment benefits. Although the surveys provide information on the source of individual income (identifying the reception of unemployment benefits, if any), a considerable number of missing values for this variable led us to discard its use as a regressor.

⁶See Bover, García-Perea, and Portugal (1998).

taken with a dose of caution. Hopefully, the inconsistency in the estimation of γ_2 due to endogeneity is of a similar order of magnitude in both countries, so that it does not affect to the comparison.

3 The Results

In this section we report the results from OLS estimation of several versions of regression (1). First, we run regression (1) with two different samples, one including all the individuals in the sample, and another excluding the population out of the labour force. As regressors and besides employment status, we include age and its square, sex, educational attainment levels, a set of regional dummies, and a dummy if the household owns a house. Each observation corresponds to an individual and, since the dependent variable is consumption per capita defined as household consumption divided by the number of household's members, all the individual in the same household share the same value for the dependent variable. This makes the variance-covariance matrix of the error term non-homoscedastic, and, hence, we compute heteroscedasticity-robust standard errors. An alternative procedure would be to choose the household as the unit of the analysis and to relate household's consumption to the household's employment status defined, for instance, as the household's unemployment rate (the proportion of unemployed household's members). Given the structure of the data sets, this alternative specification is slightly more cumbersome. Furthermore, the comparison of consumption across household units conditioning on household's characteristics and the employment status of the household's members would be less informative on the loss of consumption from being unemployed, since intra-family transfers would not be taken into account. Admittedly, by assigning to each individual as consumption per capita its proportional share of household's consumption we are assuming a particular form of these intra-family transfers.

The results from the OLS estimation of regression (1) with the population and the labour force samples are reported in Table 2a (for Portugal) and Table 2b (for Spain). They confirm our presumption that consumption under unemployment falls down by much more in Portugal than in Spain. Relative to consumption under employment, in Portugal the decline for unemployed with past job experience is 83% ($0.38 + 0.45$) for durables and 24% ($0.18 + 0.6$) for non durables, in the population-sample, and 84% and 24% in the

labour force-sample. Likewise, the corresponding differences for unemployed without past job experience are 77% and 27% in the first sample, and 78% and 29% in the second sample. In contrast, in Spain the consumption losses of being unemployed with job experience are 54% and 25% in the second one, whereas in the case of unemployment without past job experience, the losses become 37% and 14% in both samples. In sum, whereas the reduction in the consumption of non-durables is similar in both countries, the decline in the consumption of ~~non~~-durables is 30 p.p. larger in Portugal. As regards previous job experience, which entitles to unemployment benefits, the difference in consumption is of the same order of magnitude as above in regard to durables and about zero in the case of non-durables whose intertemporal elasticity of substitution is lower. The different sizes in the fall of consumption of durables and non-durables is consistent with different models of intertemporal allocation of consumption, and with the (more detailed) empirical evidence found by Browning and Crossley (1998) with Canadian panel data.

At first sight, a surprising feature of this set of results is that the fall in consumption for the unemployed with past job experience is of a similar order of magnitude, both for durables and non-durables, in Portugal, and smaller, in both cases in Spain, than for the unemployed without past job experience. Since as explained above, past job experience is a prerequisite to be eligible to receive unemployment benefits in both countries, and unemployment benefits help to smooth consumption, it should be expected a larger fall in consumption for the unemployed without past job experience. In the Portuguese case, it can be argued that, since the coverage unemployment benefits was low (22 per cent of registered unemployment in 1990 versus 54 per cent for the same year in Spain, according to OECD, 1997, Table 6) unemployment benefits have played a limited role at smoothing consumption. However, this does not explain the larger fall in consumption for the unemployed with past job experience in Spain. Other likely explanation is that the unemployed with past job experience are more likely to be breadwinners than unemployed without past job experience and, therefore, consumption falls by more when the breadwinner is unemployed. Moreover, if the other buffer against unemployment, family insurance, were playing a different role, the coefficients for the unemployed with and without job experience would show a different pattern in both countries, as happens in Tables 2a and 2b.

Table 2a. Portugal

	Sample: Population (aged 16-64). N=21,807		Sample: Labour Force (aged 16-64). N= 13,631	
	Consumption of Durable Goods	Consumption of Non-Durable Goods	Consumption of Durable Goods	Consumption of Non-Durable Goods
Constant	11.69 (0.16)	15.31 (0.04)	11.94 (0.02)	15.47 (0.05)
Owens a house	0.11 (0.04)	0.04 (0.01)	0.08 (0.05)	0.01 (0.01)
Unemployed (with job experience)	-0.45 (0.15)	-0.06 (0.03)	-0.84 (0.14)	-0.24 (0.03)
Unemployed (without job experience)	-0.39 (0.15)	-0.09 (0.03)	-0.78 (0.14)	-0.29 (0.03)
Employed	0.38 (0.05)	0.18 (0.01)	-	-
Age	0.07 (0.1)	0.01 (0.002)	0.08 (0.01)	0.01 (0.002)
Age-Squared (x100)	-0.09 (0.01)	-	-0.15 (0.05)	-
Female	-0.10 (0.04)	-0.05 (0.01)	0.85 (0.05)	-0.08 (0.01)
Secondary Studies	0.95 (0.05)	0.50 (0.01)	0.85 (0.06)	0.49 (0.01)
University Studies	1.48 (0.10)	0.83 (0.02)	1.48 (0.10)	0.84 (0.02)
Regional Dummies (7)	YES	YES	YES	YES
\bar{R}^2	0.12	0.23	0.12	0.26

(Heteroscedasticity-robust standard errors in parenthesis)

Note: The reference individual in the population sample is: male out the labour force, without a house and with primary studies; as regards the labour force-sample, the reference individual is as before except that employed instead of non-participant.

Table 2b. Spain

	Sample: Population (aged 16-64). N=46,343		Sample: Labour Force (aged 16-64). N= 26,051	
	Consumption of Durable Goods	Consumption of Non-Durable Goods	Consumption of Durable Goods	Consumption of Non-Durable Goods
Constant	11.56 (0.06)	13.31 (0.02)	11.66 (0.09)	13.40 (0.03)
Owens a house	-0.06 (0.02)	-0.15 (0.01)	-0.02 (0.02)	-0.14 (0.01)
Unemployed (with job experience)	-0.34 (0.04)	-0.14 (0.02)	-0.53 (0.04)	-0.25 (0.02)
Unemployed (without job experience)	-0.17 (0.03)	-0.03 (0.01)	-0.37 (0.02)	-0.14 (0.01)
Employed	0.20 (0.02)	0.11 (0.01)	-	-
Age		(non-significant)		(non-significant)
Age-Squared (x100)				
Male	-0.14 (0.02)	-0.06 (0.01)	-0.14 (0.02)	-0.07 (0.01)
Secondary Studies	0.64 (0.02)	0.26 (0.01)	0.37 (0.02)	0.26 (0.01)
University Studies	0.64 (0.02)	0.45 (0.01)	0.69 (0.03)	0.46 (0.01)
Living in Urban areas	0.21 (0.01)	0.15 (0.01)	0.18 (0.02)	0.13 (0.01)
Regional Dummies (7)	YES	YES	YES	YES
R ²	0.06	0.19	0.08	0.21

(Heteroscedasticity-robust standard errors in parenthesis)

Note: The reference individual in the population sample is: female out the labour force, without a house and with primary studies; as regards the labour force-sample, the reference individual is as before except that employed instead of non-participant.

To investigate the role of family insurance on relative consumption when employed and unemployed, we run some additional regressions controlling for the individual's household status (breadwinner, spouse, and living with parents). The individual's family status can be observed in the Spanish data set but, unfortunately, is not available in the Portuguese survey, where there is only information on the employment status of the household's breadwinner. Thus, for Spain, we run regressions splitting the samples according to household status, and for Portugal, we include as an additional regressor the employment status of the household's breadwinner. The results are reported in samples 3 (for Portugal) and 4a to 4c (for Spain).⁷

As seen in Table 3, in Portugal, when the employment status of the household's breadwinner is included as a regressor, the consumption losses from unemployment are .64-.69 for durables and .17-.26 from non-durables. The coefficients of the employment status of the household's breadwinner are 0.68 if employed, and non-significant if unemployed, for durables, and .13 if employed, and -.12 if unemployed with past job experience, for non-durables. Thus, even after controlling for the breadwinner's employment status, the consumption of the unemployed is significantly lower relative to the consumption of employed workers. Furthermore the fall in consumption for the unemployed with past job experience is similar to that of the unemployed without past job experience (larger for non-durables for the unemployed without past job experience) which is consistent with the previous view that both unemployment benefits and family insurance have played a limited role at reducing the consumption losses from unemployment in Portugal.

In contrast, in Spain the loss of consumption when unemployed relative to employed depends on the individual employment status. This loss is more pronounced in Spain when the sample is restricted to breadwinners (about .8 for durables and .15 for non-durables) and much lower for spouses and individuals living with their parents (about .3 for durables and .15 for non-durables, in the case of spouses, and .35 and .15, respectively, in the case of individuals living with their parents).⁸ In all the cases and as could be expected, it is the consumption of durables the most sensitive to the individual's employment status. Moreover, the fall in consumption for the unemployed

⁷We also include an additional regressor, namely, a dummy variable if the individual lives in urban areas.

⁸These consumption losses are computed by taking a rough average of the coefficients for unemployed with and without past job experience and adding it up to the coefficient for employed.

without past job experience is smaller than for the unemployed with past job experience, independently of the family status (breadwinners, spouses, and living with parents) which is suggestive of family insurance playing a significant role (and more important than unemployment benefits) at reducing the fall of consumption from unemployment.

In sum, from the results presented in the previous Tables, it seems that the hardship of becoming unemployed in Portugal is significantly larger than in Spain. Furthermore, when controlling from household status in the regressions from Spain, we obtain that the consumption losses are smaller for the second earners in the household, which suggests the existence of intra-family transfers. This evidence is consistent with the relatively more generous Spanish unemployment insurance and with the much higher incidence of Spanish unemployment among women and youths, who are likely to be those second earners whose consumption standards are not too responsive to the individual's employment status.

Table 3. Portugal		
	Sample: Population (aged 16-64). N=21,807	
	Consumption of Durable Goods	Consumption of Non-Durable Goods
Constant	10.06 (0.16)	14.89 (0.04)
Owns a house	0.18 (0.04)	0.05 (0.01)
Unemployed (with job experience)	-0.40 (0.15)	-0.01 (0.04)
Unemployed (without job experience)	-0.45 (0.15)	-0.10 (0.03)
Employed	0.24 (0.05)	0.16 (0.01)
Age	0.06 (0.01)	0.006 (0.002)
Age-Squared (x100)	-0.07 (0.01)	0.002 (0.001)
Female	-0.08 (0.04)	-0.04 (0.01)
Secondary Studies	0.90 (0.05)	0.50 (0.01)
University Studies	1.52 (0.11)	0.84 (0.02)
Living in Urban Areas	1.29 (0.04)	0.34 (0.01)
Employed Breadwinner	0.68 (0.05)	0.13 (0.01)
Unemployed Breadwinner (with past job experience)	-0.02 (0.18)	-0.12 (.04)
Unemployed Breadwinner (without past job experience)	0.13 (0.91)	-0.06 (0.20)
\bar{R}^2	0.22	0.22

(Heteroscedasticity-robust standard errors in parenthesis)

Note: The reference individual in the population sample is: male out the labour force, without a house and with primary studies.

Table 4a. Breadwinners. Spain.		
	Sample: Population (aged 16-64). N= 15,657	
	Consumption of Durable Goods	Consumption of Non-Durable Goods
Constant	12.36 (0.19)	13.96 (0.07)
Owens a house	-0.09 (0.03)	-0.18 (0.01)
Unemployed (with job experience)	-0.78 (0.42)	-0.04 (0.15)
Unemployed (without job experience)	-0.25 (0.05)	-0.05 (0.02)
Employed	0.32 (0.04)	0.13 (0.01)
Age	-0.04 (0.01)	-0.04 (0.003)
Age-Squared (x100)	0.04 (0.01)	0.05 (0.003)
Male	-0.08 (0.04)	-0.16 (0.01)
Secondary Studies	0.41 (0.03)	0.28 (0.01)
University Studies	0.76 (0.04)	0.50 (0.01)
Living in Urban areas	0.19 (0.02)	0.13 (0.01)
Regional Dummies (7)	YES	YES
\bar{R}^2	0.07	0.22

(Heteroscedasticity-robust standard errors in parenthesis)

Note: The reference individual in the population sample is: female out the labour force, without a house and with primary studies.

Table 4b. Spouses Spain.		
	Sample: Population (aged 16-64). N= 14,195	
	Consumption of Durable Goods	Consumption of Non-Durable Goods
Constant	11.66 (0.17)	13.35 (0.07)
Owns a house	-0.10 (0.03)	-0.17 (0.01)
Unemployed (with job experience)	-0.23 (0.18)	-0.06 (0.06)
Unemployed (without job experience)	0.08 (0.05)	0.04 (0.02)
Employed	0.22 (0.03)	0.15 (0.01)
Age	0.001 (0.01)	-0.02 (0.002)
Age-Squared (x100)	-0.01 (0.01)	0.03 (0.004)
Male	-0.04 (0.07)	0.03 (0.02)
Secondary Studies	0.44 (0.03)	0.28 (0.01)
University Studies	0.69 (0.05)	0.45 (0.02)
Living in Urban areas	0.21 (0.02)	0.16 (0.01)
Regional Dummies (7)	YES	YES
\bar{R}^2	0.07	0.20

(Heteroscedasticity-robust standard errors in parenthesis)

Note: The reference individual in the population sample is: female out the labour force, without a house and with primary studies.

Table 4c. Living with parents Spain.		
	Sample: Population (aged 16-64). N= 14,496	
	Consumption of Durable Goods	Consumption of Non-Durable Goods
Constant	11.63 (0.12)	12.87 (0.05)
Owns a house	-0.05 (0.03)	-0.16 (0.01)
Unemployed (with job experience)	-0.30 (0.04)	-0.17 (0.02)
Unemployed (without job experience)	-0.10 (0.04)	-0.08 (0.02)
Employed	0.15 (0.03)	0.05 (0.01)
Age	0.003 (0.01)	0.02 (0.003)
Age-Squared (x100)	-0.05 (0.01)	-0.03 (0.005)
Male	-0.08 (0.02)	0.02 (0.01)
Secondary Studies	0.32 (0.02)	0.21 (0.01)
University Studies	0.53 (0.04)	0.33 (0.01)
Living in Urban areas	0.19 (0.02)	0.16 (0.01)
Regional Dummies (7)	YES	YES
\bar{R}^2	0.08	0.18

(Heteroscedasticity-robust standard errors in parenthesis)

Note: The reference individual in the population sample is: female out the labour force, without a house and with primary studies.

4 Concluding Remarks

In order to test whether unemployment hardship could be the main factor behind the different wage adjustment and unemployment duration in Portugal and Spain, we have measured the fall in consumption due to unemployment, relative to being employed and/or inactive, in both countries. Using data from the Household Budget Surveys, we find that this fall is largest in Portugal, a finding which is consistent with stricter unemployment insurance programs and the lesser role that the extended family plays as a "buffer" against unemployment in that country as compared to Spain. Our results are also consistent with the fact that unemployed in Spain is highly concentrated among second earners in the family, which, together with the unemployment benefits, explains why the Spanish economy has been able to cope with unemployment rates above 20 per cent during many years in the past two decades.

Finally, we comment on two interesting extensions of our work for the research agenda. First, it should be reminded that our estimations provide just a very first pass at the available data on the relationship between consumption and employment status. As commented previously, for Spain and other European countries (not including Portugal) there are comparable data sets with a longitudinal structure which can be used to assess how "being unemployed" or "becoming unemployed" have different consequences in terms of consumption across countries. Secondly, our estimations come from data for 1990. Since then, the coverage and generosity of unemployment benefits have been extended in Portugal and reduced in Spain (in 1995, 43 per cent of the registered unemployed were receiving benefits in Portugal while only 40 per cent were receiving benefits in Spain -OECD, 1997, Table 6). It will be most informative to check how these changes have affected to the relative fall in consumption from unemployment in both countries, as new waves of the Household Budget Surveys for more recent years become available.

5 Appendix: Unemployment, permanent income and consumption

We provide here a simple model which highlights the determinants of the consumption loss from unemployment. As a starting point, let us assume a concave utility function and perfect capital markets, so that consumption, c , is equal to permanent income, y^p . Individuals are either employed, E , or unemployed, U . When employed, they receive wages, w , and are fired with probability f . When unemployed, they receive unemployment benefits, b , and transfers from other members of the family, τ ($b + \tau < w$), and are hired with probability h . The discount factor is β ($0 < \beta < 1$). Then, assuming an infinite horizon, permanent income when employed (the value of being employed) is given by

$$\begin{aligned} V(E) &= w + \beta [fV(U) + (1-f)V(E)] = & (A.1) \\ &= \frac{w}{1 - \beta(1-f)} + \frac{\beta fV(U)}{1 - \beta(1-f)} & (2) \end{aligned}$$

whilst permanent income when unemployed (the value of being unemployed) is given by

$$\begin{aligned} V(U) &= b + \tau + \beta [hV(E) + (1-h)V(U)] = & (A.2) \\ &= \frac{b + \tau}{1 - \beta(1-h)} + \frac{\beta hV(E)}{1 - \beta(1-h)} & (3) \end{aligned}$$

To avoid tedious algebra, suppose $h = f$ (the higher h is, the higher the turnover rate is). Then the difference between permanent income (or consumption) when employed and unemployed is given by

$$V(E) - V(U) = \frac{w - (b + \tau)}{1 - \beta(1 - 2h)}$$

which is increasing in the effective replacement ratio ($w - (b + \tau)$), in the discount factor, β , and decreasing in the turnover rate, h . This is a lower bound of the difference between consumption in both states, since under imperfect capital markets and binding liquidity constraints, this difference is bound to be larger.

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