

# Unemployment and Consumption: Are Job Losses Less Painful near the Mediterranean?

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Working Paper No. 0010  
September 2000

We wish to thank Olivier Blanchard for early encouragement and very useful comments, and Manuel Arellano, Wiji Arulampalam, Anindja Banerjee, Soren Johansen, Derek Neal, Ray Rees, Enrique Sentana, Guglielmo Weber, and participants at the Lisbon and Tel Aviv meetings of the CEPR TSER network on “Labor Demand, Education and the Dynamics of Social Exclusion”, at the EALE-SOLE World Conference in Milan, June 2000, and at seminars at CESifo and the University of Padova for help and comments. We also wish to thank Thomas Bauer, Reinhard Bispinck, Florentino Felgueroso, Pietro Ichino, and David Metcalf for useful information. We are very grateful to Sascha Becker, Antonio Filippin, Anna Fruttero, J. Ignacio Garcia-Perez, Graciela Sanromán, and Frank Siebern for excellent research assistance. This research is supported by the European Commission TSER Project number ERB4142 PL97/3148. (Email addresses: bentolila@cemfi.es, ichino@iue.it.)

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## **Abstract**

In this paper we analyze the relationship between unemployment and consumption. We study this relationship with panel data on households in five countries: Spain, Italy, Germany, Britain, and the US. Our empirical results indicate that an increase in the duration of unemployment spells of male household heads is associated with smaller consumption losses in Spanish and Italian households. We discuss this finding in the light of different market and institutional frameworks. The evidence supports the hypothesis that extended family networks, which appear to be stronger near the Mediterranean, provide a fundamental source of insurance against unemployment in southern Europe.

*Key words:* Consumption, Savings, Unemployment.

*JEL classification:* E21, E24.

# 1 Introduction

Southern European countries like Spain and Italy are characterized by very high unemployment rates, in particular in their southern regions. However, such high, long-term, and persistently concentrated unemployment rates do not seem to lead to dramatic situations of economic need in the population or to social unrest. This observation is consistent with the conjecture that in some sense unemployment is *less painful* near the Mediterranean. In this paper we present evidence supporting this conjecture, we discuss which factors may contribute to make it true, and we draw some implications for policy.

The evidence supporting the conjecture is presented in Section 2 where, using consumption losses as a measure of how painful unemployment is, we show that an increase in the duration of unemployment spells of male household heads is associated with larger consumption losses in Germany, Britain, and the US (hereafter *the North*) than in Spain and Italy (hereafter *the South*).<sup>1</sup>

Existing theories of consumption suggest a host of factors which explain whether and why we could observe an empirical association between consumption and unemployment at the household level. We do not aim to test which of these theories is right. Our goal is just to understand whether they can explain the differences across countries that we observe. With this goal in mind, in Section 3 we summarize these theories and we identify the factors which, according to them, should explain the relationship between unemployment and consumption. In Section 4 we look at the evidence on these factors

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<sup>1</sup>Our approach echoes that of Castillo *et al.* (1998), who compare the difference between the consumption *levels* of employed and unemployed workers in Portugal and Spain, using one cross-section of household data per country. Closely related approaches, based like ours on longitudinal data, can also be found in Browning and Crossley (1998) for Canada, and Dynarski and Sheffrin (1987) and Dynarski and Gruber (1997) for the US, each of which, however, uses data on one country alone.

in the North and the South.

The outcome of our analysis is striking from the viewpoint of our aims. The joint consideration of theoretical models and the stylized characteristics of the specific economies analyzed indicate that the North-South differences in the association between consumption and unemployment should either have the opposite sign to the one found empirically, or else no difference should be observed. For example, consumption might be less responsive to unemployment in the South due to more comprehensive social welfare institutions but, on the contrary, northern governments are the ones that appear to be more effective in protecting workers against the unemployment risk. Moreover, there is substantial evidence suggesting that credit and insurance markets are also more developed in the North than in the South, and for this reason more consumption smoothing should be expected in the North. Lastly, non-separability between consumption and leisure has also been considered in the literature as a possible explanation of the correlation between unemployment and consumption. We do not deny that this effect might be relevant, but we will argue that it is hard to see how it could generate significant differences across countries and, moreover, why those differences should go in the direction required to explain our findings.

We conclude from this analysis that some other factor must play a role in determining the cross-country differences described in Section 2. Searching for other explanations of these differences, in Section 5 we suggest that *extended family networks* could be the institution that helps making unemployment less painful near the Mediterranean and we provide some suggestive evidence in support of this hypothesis. Section 6 concludes.

## 2 A fact in search of explanations

Table 1 reports the percentage consumption losses suffered by households in which the male head becomes unemployed for five countries, namely Spain, Italy, Germany, Britain, and the US. An interesting pattern emerges from the table: in the two Mediterranean countries the losses are in general smaller and less statistically significant than in the other three countries.

The figures reported in Table 1 are estimates, obtained separately for each country, of the parameter  $\gamma$  in the following equation:

$$\Delta \ln C_{it} = \alpha + \beta \Delta X_{it} + \phi W_{it} + \lambda_t + \gamma \Delta U_{it} + \varepsilon_{it} \quad (1)$$

where  $\Delta$  is the first difference operator,  $i$  denotes households, and  $t$  denotes years.<sup>2</sup> We present results for two measures of household consumption  $C_{it}$ : total consumption and food consumption. The table shows the results for the consumption aggregates available for each country.  $X_{it}$  is a set of time-varying household characteristics which includes the number of children aged less than 14 years old, the number of children aged between 14 and 19 years old, the number of other members, and the fraction of females in the household.  $W_{it}$  is instead a set of household characteristics measured in levels which are assumed to affect consumption growth. This set includes the years of schooling and the age of the male household head measured at  $t$ , as well as a dummy for home ownership at  $t - 1$ .<sup>3</sup> Aggregate country-specific shocks to consumption growth are captured by the set of yearly dummies  $\lambda_t$ . As explained in the Data Appendix, for Spain we observe households for

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<sup>2</sup>The Data Appendix provides information on the data sets used to estimate this equation and descriptive statistics on the variables included in the analysis.

<sup>3</sup>Throughout the paper the term “male (female) household head” refers simply to the male (female) member of the heading couple (or the male (female) single head). In other words, we do not follow typical survey criteria by which the member with the highest income, say, is defined as the head.

eight consecutive quarters in the period 1986-1996. Hence, for Spain, the time dummies are a set of indicators for the quarter in which each household begins to be observed.

Ideally, we would like to measure the effect of unemployment on consumption when unemployment is not anticipated. In order to get as close as possible to this goal we restrict our attention to the effect of unemployment spells of male household heads who appear to be regularly employed ex-ante.<sup>4</sup>

More precisely,  $U_{it}$  in equation (1) is the number of months of unemployment of the male head of household  $i$  in year  $t$  and we restrict the sample to households in which the male head is continuously employed during  $t - 1$  ( $U_{it-1} = 0$  and  $\Delta U_{it} \geq 0$ ). Focusing on male household heads mitigates potential endogeneity problems due to the joint determination of consumption and labor supply decisions. Furthermore, male heads fully employed during  $t - 1$  are arguably individuals for which unemployment at  $t$  is more likely to be unanticipated.<sup>5</sup>

The first column of Table 1 shows that in Germany a one-month increase in the duration of unemployment of the male household head is associated with a 1.5% decrease of total yearly household consumption and the estimated coefficient is significantly different from zero. In Spain and Italy, instead, the point estimates are substantially smaller in absolute value, they are not significantly different from zero, and they are significantly different from the German estimate (see below).

As suggested by Dynarski and Gruber (1997) in a slightly different context, if  $\Delta U_{it}$  is measured with error the estimate of  $\gamma$  is biased. Thus, in principle, differences in measurement errors across countries could explain

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<sup>4</sup>A similar approach is followed by Dynarski and Gruber (1997).

<sup>5</sup>Casual empiricism indicates that, *ceteris paribus*, male heads tend to be the least likely workers to be fired. In Europe, regulations usually require firms to give workers a short advance notice of dismissals, but this is not of concern given our use of annual data.

the North-South differences in the estimates of  $\gamma$ . We try to deal with this potential problem in the standard way, using the instrumental variable (IV) method. In all our datasets two different types of questions provide information on the employment status of male household heads. One type allows us to construct the duration of unemployment during year  $t$ . The other type gives information on the employment status at a precise date (see Data Appendix). From the latter type of questions we have constructed a dummy variable  $M_{it}$  taking the value of 1 in case of unemployment and 0 otherwise. The first difference of this dummy,  $\Delta M_{it}$ , is evidently correlated with our variable of interest,  $\Delta U_{it}$ . However, under the fairly reasonable assumption that the measurement error in  $\Delta U_{it}$  is not correlated with the measurement error in  $\Delta M_{it}$ , this latter first difference is a good instrument for the former in order to reduce the measurement error bias in the estimate of  $\gamma$ . The results of this exercise for total consumption are presented in the second column of Table 1. The IV estimate for Germany is twice as large as the OLS estimate, while the IV estimates for Italy and Spain increase only slightly and insignificantly with respect to OLS. This reinforces the evidence in favor of the existence of large North-South differences.

In the third and fourth column of Table 1 we look at the evidence for food consumption. The OLS estimates suggest that the same increase in unemployment duration is associated with a 0.6-0.7% decrease of food consumption in Britain and in the US, and the two point estimates are again significantly different from zero. In the two Mediterranean countries, instead, we cannot reject the hypothesis of zero correlation. When we take care of measurement error in the fourth column, using the same methodology as above, the North-South differences increase in size and, in the case of the

UK, statistical significance.<sup>6</sup>

How significant are these North-South differences? We have computed one-sided tests on IV estimates for the null hypothesis that the  $\gamma$  coefficients are the same, against the alternative that  $\gamma$  is higher (i.e. less negative) in the South than in the North. For total consumption, the null hypothesis is overwhelmingly rejected for both Spain and Italy *vs.* Germany (with respective p-values of 0.003 and 0.006). In the case of food consumption, it is clearly rejected for Spain *vs.* Britain (p-value of 0.04) but not for Spain *vs.* the US, nor for Italy *vs.* Britain and the US (0.26, 0.16 and 0.41, respectively). However, neither in these latter cases nor, *a fortiori*, in the previous ones, do we find any evidence indicating that  $\gamma$  is lower (i.e. more negative) in the South as instead predicted by the models to be discussed in section 3.

To check the robustness of these results we have repeated the estimation of equation (1) without restricting the sample to households with no unemployment at  $t - 1$ , adding a dummy variable for the presence of a female head, restricting the sample to households in which both male and female heads are present,<sup>7</sup> and changing in various ways the list of included regressors. We also checked for duration effects by considering unemployment to be represented by durations at or above six months (which should be a stronger and more unexpected shock). In all these exercises the results were similar to the ones displayed in Table 1. Ideally, we would have wanted to

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<sup>6</sup>The finding that North-South differences also apply to food consumption undermines an interpretation in which Northerners, who are richer on average, respond to unemployment shocks by reducing purchases of luxury-goods while Southerners, poorer on average, do not reduce consumption of necessities.

<sup>7</sup>We will say more on the role of female heads in Section 5. In any event, the larger unemployment effect in the North cannot be explained by male head's employment being a more important source of income there. In our surveys, the male head's labor income as a fraction of total household labor income in the year before becoming unemployed is similar across countries, but on average larger in the South (83% in Spain, 80% in Italy) than in the North (78% in Germany and the US, and 75% in Britain).



allow for unemployment shocks having a different impact on consumption depending on certain household characteristics, such as the male head's age. However, the fraction of households with an unemployed male head is quite low (ranging from 1 to 3%, see Tables 9 to 13), so that any interaction with household characteristics has no chance of attaining statistical significance.<sup>8</sup>

The goal of the next two sections is to determine whether the conventional stories one can tell to explain the association between unemployment and consumption at the household level are capable of explaining the cross-country differences displayed in Table 1.

### **3 Interpretations of the relationship between unemployment and consumption**

To interpret and explain the empirical finding just described we need a theoretical framework.<sup>9</sup> Several theories may be relevant for this purpose in the sense that, either directly or indirectly, they have something to say on a parameter like  $\gamma$  in equation (1). In this section we will discuss the leading ones: the perfect insurance model and the life-cycle model, the latter with either separability or non-separability in utility between consumption and leisure. Our strategy will then be to show, in Section 4, how estimates of  $\gamma$

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<sup>8</sup>We think it unwise, however, to control for income changes. The effect of unemployment shocks (typically affecting both current and future incomes) are of interest in themselves and can be interpreted within the theories described below. For income instead, we would be able to measure current changes alone, which moreover need not be related to unemployment. And it would be very difficult to credibly disentangle expected and unexpected income changes. Lastly, large measurement errors in reported income are pervasive in household surveys (Deaton, 1992), which would render any estimates unreliable. We thus focus solely on unemployment, as Dynarski and Sheffrin (1987) and Dynarski and Gruber (1997) do.

<sup>9</sup>We treat the family as a single subject, thus sidestepping the issues raised by the economics of the family (see Becker, 1981).

can be interpreted under each of these theories. In light of the evidence on institutional settings, concerning in particular the Welfare State and credit and insurance markets in the North and the South, we shall then be able to show that the results displayed in Table 1 are at odds with standard formulations of each of these theories, so that an additional explanatory factor is needed.<sup>10</sup>

### 3.1 The full insurance model

Let us start from the benchmark extreme case of perfect insurance markets. When full insurance is available only aggregate risk should affect consumption, since idiosyncratic risk is insured away. Full insurance implies that there is a complete set of *Arrow securities*, each of which promises to pay a unit return in a given state of nature and a given period, against payment now of a price determined in a competitive security market. A household can thus make a fully-specified, contingent consumption plan at the beginning of its life.

Let us assume that household utility is a function of consumption, leisure, and household preferences (demographics). It is a standard result that, according to the first order optimality condition, consumption growth depends negatively on the discount rate and positively on the real interest rate, and it also depends on changes in household characteristics and aggregate shocks (see Deaton, 1992, p. 35). These determinants would respectively be captured in equation (1) by  $\alpha$ ,  $\lambda_t$ ,  $\beta\Delta X_{it} + \phi W_{it}$ , and  $\varepsilon_{it}$ .<sup>11</sup>

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<sup>10</sup>The models described below apply strictly to consumption of non-durables, since durables entail further dynamics. But since data on a non-durables aggregate is missing for all northern countries in our dataset, our evidence is limited to either total or just food consumption. This might be a relevant limitation, since Browning and Crossley (1999) find for Canada that becoming unemployed especially affects expenditures on “small” durables like clothing, kitchenware, etc.

<sup>11</sup>Variables in levels ( $W_{it}$ ) enter equation (1) because utility might depend on family

The key implication of the model is that no time-varying household-specific variable should help explain the change in consumption. The hypothesis of full insurance is usually rejected empirically in the case of the US,<sup>12</sup> although the evidence is more favorable with data on developing countries, for instance with data on villages in India (Townsend, 1994). The coefficient  $\gamma$  on  $\Delta U_{it}$  in equation (1) can be seen as capturing the extent of the departure from full insurance, and for this reason it should be negative and larger, in absolute value, the less developed insurance mechanisms are.

### 3.2 The life-cycle model

If available insurance is imperfect, then the natural reference framework is that of the life-cycle hypothesis (LCH), where households need to self-insure against idiosyncratic risks like unemployment.

Let us assume again that household utility is a function of consumption, leisure, and demographics, and adopt a constant relative risk aversion function with separability between consumption and leisure –an issue we shall reexamine below (see Section 3.3). Then, according to the first order optimality condition under standard assumptions, consumption growth depends on the difference between the real interest rate and the discount rate, on changes in household characteristics, and on the conditional variance of the change in consumption (see Browning and Lusardi, 1996). The correspon-

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characteristics in a non-linear fashion. For example if demographics entered it as a function like  $\varphi(Z_t) = \exp(\varphi_1 age_t + \varphi_2 age_t^2)$ , then the first-differenced first order condition for consumption in period  $t$  would include the term  $\varphi_2(age_t^2 - age_{t-1}^2) = \varphi_2(2 age_t + 1) = \varphi_2 + \varphi_1' age_t$ , with  $\varphi_1' = 2\varphi_2$ .

<sup>12</sup>Testing on food consumption data from the US Panel Study of Income Dynamics (PSID) has proceeded by including, for instance, the unexpected change in employment status as a regressor. It is usually rejected (Hayashi *et al.*, 1996), though not always (Mace, 1991). The tests in Hayashi *et al.* also allow for a rejection of the hypothesis of family insurance, where households pool risks within the extended family, which is itself not insured by the outside world.

dence between these variables with those in equation (1) would be as for the full insurance model, except that we now are implicitly subsuming the conditional variance in the constant term, since we lack observable counterparts to it.<sup>13</sup>

This first order condition would in general also include an *excess sensitivity* term, capturing the effect of expected changes in labor income (or employment status), which would result from the existence of liquidity constraints (see Browning and Lusardi, 1996). In our case we need not add such a term, however, because our empirical estimates only concern a negative event, namely a transition from employment to unemployment. If this transition is expected, the household can always smooth consumption as desired, by adjusting its consumption in advance, without having to borrow.

This does not mean that liquidity constraints are irrelevant, however. An unexpected unemployment spell will lead the consumer to revise his expectations about the future path of his labor income, and therefore his desired consumption. Its incidence should therefore depend essentially on two issues: how large the shock is and whether the consumer can attain his new desired consumption level. As to the shock size, the impact will be larger the longer the expected duration of unemployment and the higher the loss in future wages resulting from the current unemployment experience.<sup>14</sup> As to the attainability of new optimal consumption, it will depend on initial wealth, income while unemployed, and borrowing possibilities. Clearly, liquidity constraints should induce a stronger response of consumption to unemployment.

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<sup>13</sup>Though standard, this way of proceeding has been criticized by Carroll (1992), on the grounds that ignoring variability in the variance may lead to incorrect empirical rejection of the LCH.

<sup>14</sup>For instance, with certainty equivalence, an infinite horizon, and a constant real interest rate  $r$ , the change in consumption  $C_t$  is given by (where  $y$  denotes labor income and  $E_t$  the expectation at  $t$ ):  $\Delta C_t = \sum_{k=0}^{\infty} (1+r)^{-k} (E_t y_{t+k} - E_{t-1} y_{t+k})$ .

In the absence of liquidity constraints but with risk aversion, if the unemployment shock leads the consumer to revise his previous expectations and he now perceives future consumption, or more directly labor income, as being more uncertain than anticipated, then he will reduce current consumption below the previously planned level –i.e. raise precautionary saving–. This effect should be larger the higher the degree of risk aversion.<sup>15</sup>

In terms of equation (1), the coefficient  $\gamma$  on  $\Delta U_{it}$  should therefore be negative and higher, in absolute value, the higher is the revision of either the expectations of future expected earnings or the degree of uncertainty attached to them caused by an unemployment shock, and the more binding liquidity constraints are.

### 3.3 Non-separability between consumption and leisure

The implications for the life-cycle model are modified if we allow for non-separability between consumption and leisure in utility. In this case, keeping the constant relative risk aversion specification for utility, the implications of the model remain valid, except that an extra term belongs in the first order condition for the change in consumption, namely the expected change in leisure. According to this interpretation, the change in the unemployment indicator in equation (1) would be interpreted as capturing expected increases in leisure as well. The coefficient  $\gamma$  on  $\Delta U_{it}$  should be negative (as long as the coefficient of risk aversion is larger than unity) and its absolute value should be larger the higher the degree of risk aversion and the higher the utility provided by leisure relative to consumption. Indeed, Attanasio and Weber (1993) argue that utility obtained from consumption depends on job-

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<sup>15</sup>Without certainty equivalence, a closed form solution relating the change in consumption and labor income shocks cannot be found, except for particular cases (see Deaton, 1992, chapter 6).

related expenses, so that the intertemporal allocation of expenditure should do so as well.<sup>16</sup> In support of their claim, they present excess sensitivity tests on cohort data for the UK and the US (Attanasio and Weber, 1993 and 1995, respectively), where the statistical significance of the expected change in labor income depends on the condition that no labor supply variable is included in the consumption regression.

## 4 The failure of conventional explanations

We can now use the models discussed in the previous section to interpret our empirical finding that the estimated response of consumption growth to an unemployment shock is stronger in the North than in the South.

### 4.1 The Welfare State story

As discussed in Section 3.1, the perfect insurance world implies that  $\gamma$  should be equal to zero, namely that when a household is unexpectedly hit by unemployment (once changes in aggregate economic conditions are controlled for) there are insurance mechanisms which allow it to maintain its desired consumption level. However, Arrow securities do not exist in reality, and it is difficult to create a portfolio of financial assets which will cover people against the unemployment risk. Financial institutions, like banks, could provide consumption loans in the event of unemployment, but since the latter is often associated with lower than usual income, they typically only provide credit against collateral.

Private insurance companies could also play this role, but they generally do not offer policies covering the risk of unemployment. The standard

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<sup>16</sup>Browning and Meghir (1991) find some evidence against separability between demand for a certain set of goods and (male and female) labor supply for the UK.

explanation for this fact is the moral hazard issue of ascertaining whether unemployment is involuntary. This is probably the key reason why unemployment benefit (UB) systems were created.

Our finding that the drop in consumption in the event of an unemployment shock is larger in northern than in southern countries would be easy to account for if unemployment benefits were less generous in the latter than in the former. Indeed, Castillo *et al.* (1998), using one cross-section of households per country, find that consumption losses suffered by the unemployed relative to comparable employed workers are 50% to 100% higher (depending on the worker's job experience) in Portugal than in Spain. These authors make a convincing case that this results from unemployment benefits being more generous in Spain than in Portugal (see also Bover *et al.*, 2000).<sup>17</sup>

Instead, when we compare Spain and Italy with Germany and Britain, we find that the latter two countries have more developed welfare systems. Table 2 provides some evidence for 1990. Column (1) shows that total social protection expenditures as a percentage of GDP are, within Europe, highest in (West) Germany, similar in Italy and the UK, and lowest in Spain. They are higher the wealthier the country, with the US breaking the pattern (column (5)).<sup>18</sup> Unemployment benefit expenditure is largest in Spain, largely as a result of its higher unemployment rate (columns (2) and (4)).

A first, rough look at generosity is provided by the ratio of the average unemployment benefit to the average wage rate in the business sector.<sup>19</sup> Italy has the lowest ratio and Germany the highest, while Spain features a higher one than Britain. Let us discuss this finding further. An all-encompassing

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<sup>17</sup>Gruber (1997) provides estimates of the consumption smoothing role played by unemployment benefits in the US.

<sup>18</sup>Data for the US, from a different source, are however not fully comparable.

<sup>19</sup>Note that this measure depends on many other factors different from UB generosity, such as the composition of the unemployed pool, unemployment duration, etc.

definition of social protection, as in column (1), is too broad to capture the differences in the economic situation of unemployed vis-à-vis employed workers, which is our variable of interest. The variable shown in column (3) is however too narrow, because there are social benefits targeting low income situations, which the unemployed can therefore get much more easily than those employed. Taking this aspect into account changes the picture considerably, as we shall show below.

Let us now discuss unemployment benefits (see OECD, 1998, for further information). Most countries operate two systems. Unemployment insurance (UI) pays benefits to workers who contributed when employed and are involuntarily unemployed and seeking work. It is subject to maximum periods and it is not means-tested. Unemployment assistance (UA) grants supplementary income, at a lower rate than UI, to workers who have exhausted UI benefits or do not qualify for receiving them. It is means-tested but may last indefinitely, as in Britain and Germany. Those ineligible for either UI or UA can usually rely on Social Assistance (SA), by which the State provides a minimum income, independent of employment status.

Comparing UB systems across countries is a daunting task, because they differ along many dimensions which are difficult to summarize. We focus on replacement rates and duration, but abstain from discussing eligibility rules. Some figures, *circa* 1990-1995, are shown in Table 3. Column (1) contains the replacement rate –benefits as a proportion of the previous wage– from Nickell (1997). It captures UI as applied in the first 6 months of unemployment. It is lowest in Italy and much higher in Germany, with Britain and the US located in between. Spain appears to have the highest rate but again this can be misleading, as we now show.

First of all, benefits typically fall as unemployment spells lengthen. Col-



umn (2) presents an OECD-computed average replacement ratio comprising UI and UA for durations of unemployment between 3 and 5 years. It shows Italy and Spain as having zero benefits. Secondly, benefits can be withdrawn. Nickell's (1997) measure of maximum benefit duration indicates that Germany and the UK feature indefinite benefits while the other countries do not (column (3)). Blanchard and Wolfers (1999) provide a summary measure which combines the two preceding aspects by computing the number of months over which a worker can get an amount equivalent to the maximum possible replacement rate.<sup>20</sup> Their measure shows much higher durations of benefits for Britain and Germany than for Spain and Italy, with the US matching Italy (column (4)).

The economic situation of the unemployed will depend on benefit duration not just through statutory rules about benefit duration but also, *de facto*, through actual unemployment duration (which is, of course, partly endogenous to benefit duration). This channel separates again North from South, since Spain and Italy show a higher proportion of ongoing spells lasting for more than one year (column (5)). The last column provides information on the share of the unemployed receiving benefits, which encompasses the effects of statutory rules and actual duration. The share is again much lower in southern than in northern European countries (column (6)).

Lastly, let us present two amendments which improve the accuracy of reported replacement rates. First, those rates are gross of taxes, even though both wages and benefits are taxable, the latter usually at reduced rates. Secondly, as mentioned above, unemployment benefits provide an incomplete view on the relative economic position of unemployed and employed workers, because Western societies have established many social programs targeting

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<sup>20</sup>For example, if the replacement rate is 70% in the first year of unemployment, 35% in years 2-3, and 0 for years 4-5, then their measure is given by  $(12 \times 0.7 + 24 \times 0.35) / 0.7 = 18$ .

low-income situations.

Table 4 presents figures for net-of-tax replacement rates which encompass UI, UA, SA, plus housing and family benefits in 1995. Panel A reveals that the latter two are crucial. For example, the housing benefit never represents less than one third of benefit income in Britain, but it is unavailable in Spain and Italy. On the other hand, family benefits are very important for long unemployment spells in Italy and the US. Panel B reveals that the British system is much more generous than Table 2 would make it seem. Overall, this information confirms the idea that the systems in the two northern European countries become significantly more generous than those in the two southern ones as unemployment spells lengthen.

In sum, public institutions do not seem to be able to explain why unemployment could be less painful in southern Europe, in terms of consumption. Indeed, the above comparison of social protection across countries would have led us to expect exactly the opposite. A possible way out of this dilemma would be that the institutions allowing consumers to self-insure affect the response of consumption to an unemployment shock in such a way that this is higher in the North. We therefore turn now to a comparison of financial markets across our northern and southern countries.

## 4.2 The market story

As discussed in section 3.2, an unemployment shock should have a larger impact on consumption the larger is the downward revision of the consumer's expected lifetime labor income (the *size* of the shock), the more uncertain is future income perceived to be, and the more stringent are liquidity constraints preventing the household from attaining its new desired consumption level for the current period. Thus, if becoming unemployed entailed a lower

labor income loss or a lower increase in income uncertainty in the South than in the North, or else financial markets allowing households to smooth consumption were less developed in the latter, our finding could then be explained along the lines of the LCH.

As to size of the shock, it is very difficult to assess the human wealth loss caused by unemployment. In general, the longer the expected duration of the unemployment spell, the higher the loss and the predicted consumption decline.<sup>21</sup> But then we would expect a higher a lower, not higher, consumption in the North, since we have already shown in Section 4.1 that the average duration of unemployment (computed from incomplete spells) is significantly lower in the North than in the South.

Second, the human wealth loss will also depend on the effect of unemployment on expected future wages. The fragmentary evidence we have on this score, however, deepens the puzzle. Rosolia and Saint-Paul (1998) estimate for Spanish male workers aged 25-49 years old that the first wage obtained after a quarterly unemployment spell is 23% below their previous wage if they have low education and 32% below if they are highly educated. The corresponding numbers are 13%–9% for France, and 11%–5% for the US. There are data problems which make it likely that losses are overestimated for Spain<sup>22</sup> and, in any event, the first wage obtained after an unemployment spell may be a poor indicator of subsequent wage paths. But this result indicates, *prima facie*, that labor income losses arising from unemployment

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<sup>21</sup>Dynarski and Sheffrin (1987) present a permanent income model predicting that consumption changes following unemployment should be smaller the higher the worker's job recall probabilities and show estimates for food consumption in the US which confirm this prediction.

<sup>22</sup>For Spain wages are not directly observed. What is observed is labor income over a 3-month period for which there is no information on the worker's labor status but for the last week. Moreover, for France and the US estimates refer to males involuntarily displaced from a full-time job, whereas Spanish data do not allow for these controls.

are higher in this southern country than in the two northern ones.

It is even harder to find cross-country evidence on the amount of revision in perceived labor income uncertainty resulting from unemployment shocks (of course, there need not be any revision). But, if anything, the longer unemployment spells and larger drops in subsequent wages in the South than in the North suggests that revisions would be larger in the South. Consumption could still fall more in the North if, for the same change in perceived uncertainty, Northerners were more risk averse than Southerners. It seems unwise to rely strongly on differences in unobservable parameters, such as preferences, going in a given direction across countries, rather than assuming that preferences are similar. And we do not know of any empirical evidence on this issue. Still, as we will argue in the next subsection, it seems more likely that, if anything, risk aversion is higher in the South than in the North, so that our result could not be explained in this way.

Lastly, the size of the coefficient on the unemployment shock should be related to the characteristics of the channels through which households may self-insure. It should be smaller the more developed and competitive are financial markets, since then self-insurance should be easier and cheaper. Indeed, it has been traditional in the literature to interpret the coefficient on expected changes in income in connection with financial market development.<sup>23</sup> The same argument should carry through to unexpected changes.

A higher response of consumption to unemployment in the North than in the South would then be consistent with consumers in the former countries being more liquidity constrained than those in the latter. But this is

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<sup>23</sup>See Deaton (1992), chapters 3 and 5. Jappelli and Pagano (1989) provide international evidence, estimating a regression for aggregate consumption on lagged consumption and current and lagged disposable income for seven countries and relate the cross-country differences in their estimates of excess sensitivity of consumption to current income to the countries' relative degree of financial development.

counterfactual because, even after the waves of financial deregulation of the second half of the 1980s, financial institutions are still more developed in the North than in the South. This statement is supported by Table 5, which presents indicators for the 1980s and 1990s, from Jappelli and Pagano (1993) and MacLennan *et al.* (1999), respectively, which are consistent with the idea that northern financial markets are more developed than southern ones. We are therefore left with the last candidate story discussed in Section 3, namely leisure.

### 4.3 The leisure story

An alternative theory for explaining the empirical observation of a relationship between consumption and unemployment relies on the non-separability between consumption and leisure in the utility function of agents. We have just seen that inasmuch as the effect of an unemployment shock on consumption growth is determined by LCH-cum-liquidity constraints forces, the observed cross country differences are hard to justify. Could they be due instead to different degrees of non-separability between consumption and leisure in the North and in the South? We believe the answer is negative because any explanation of our results along this line is not supported by the evidence and/or it would require assumptions which are hardly appealing.

Non-separability could explain the findings of Table 1 if, for example, job-related consumption expenditures were significantly different across northern and southern countries. However, we could not find any evidence for this view. Moreover, nothing suggests that job-related expenditures would differ in the way required to explain the stronger effect in the North.

According to the non-separability model, the effect of an unemployment shock on consumption growth could be stronger in the North also if North-

erners had a higher preference for leisure than Southerners. It is very hard, if not impossible, to find convincing evidence on preferences, but at least since Max Weber's analysis in 1905 of the relationship between the Protestant ethic and the spirit of capitalism (Weber, 1976) social scientists have seriously entertained the hypothesis that a weaker *work ethic* prevails in predominantly Catholic countries like Spain and Italy while a stronger *sense of duty* characterizes predominantly Protestant, Anglo-Saxon countries like Germany, Great Britain, and the US. If anything, this hypothesis has been challenged in favor of the alternative of no differences across countries, but, as far as we can tell, never in favor of the hypothesis that Catholic and Mediterranean populations have stronger preferences for work against leisure.

One could also argue that attitudes towards risk differ across countries in a way that produces the observed results. If Northerners were more risk averse than Southerners, the non-separability model suggests that larger consumption losses would be associated with unemployment in the North. We are again not aware of convincing evidence on differences across countries regarding this aspect of agents' preferences. However, if the development of capitalism requires a higher propensity to take risks, Max Weber's analysis again suggests that risk aversion concerning economic activities is unlikely to be higher in the North.

Lastly, through our choice of the unemployment indicator, we have tried to make it more likely that we are capturing unexpected, rather than expected, transitions to unemployment, with the latter being the ones appearing in the non-separability model.

In sum, we conclude that the type of differences one can find between North and South with regard to the development of the Welfare State, the development of financial and credit markets, and the (potential) non-

separability between consumption and leisure do not provide a convincing story for our finding. So that we are left with a puzzle, unless we can find some other factor at play which is causing unemployment to be more painful in the North than in the South. Note that although a few of the North-South differences in Table 1 were not statistically significant, we still face a puzzle because all the models reviewed up to now predict a stronger effect of unemployment in the South. In the next section we propose an explanation based on another type of institution: the family.

## 5 Family ties

Our alternative hypothesis is that extended family networks may constitute the social institution which plays the crucial role of reducing the cost of unemployment near the Mediterranean. Our empirical results could be obtained if relatives either relieve liquidity constraints or provide insurance, or both. Insurance might be provided by households belonging to the same family out of a purely selfish motive, as long as insurance is mutual. Alternatively, altruistic motivations might underlie the relief of liquidity constraints.<sup>24</sup> Although these two models may have some conflicting implications, in the context of our analysis we can afford to be agnostic as to the underlying motivation for extended family activity, since the result should in any case be a lower response of consumption to unemployment.

The idea that family ties are stronger in the South than in the North is probably shared by most people who have lived for some time in both geographic regions. However, the lack of informative data sources on these issues makes it difficult to confirm this impression with hard statistical evidence. Our data just allow us to offer a suggestive collage supporting our

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<sup>24</sup>As analyzed in, e.g., Altonji *et al.* (1997).

hypothesis, which we present in this section.

When the male head becomes unemployed, the family members most likely to react so as to mitigate the consumption consequences of this event are the other members of the household and, in particular, the female spouse. She can start working or, if she already works, she can try to work more. Given the low female employment rate in Spain and Italy when compared with the other three northern countries,<sup>25</sup> the smaller consumption losses observed in the South could be the result of female heads having the option of starting to work there. In the North this option is more restricted because most females work already, so that they can only try to raise their hours of work to substitute for the income lost by the male head.<sup>26</sup> Indeed, results not reported to save space indicate that in Spain and Italy female heads are more likely to start working in case of unemployment of the male head than in the three northern countries. However, when we reestimate the regression model underlying Table 1 now controlling for the labor supply decisions of female spouses, there is basically no change in the coefficient attached to the unemployment variable in terms of its order of magnitude and, *a fortiori*, in the ranking across countries.<sup>27</sup> This result suggests that extended family networks, not necessarily involving members living in the household, play a role in reducing the consumption consequences of the male head's transition to unemployment.

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<sup>25</sup>The ratio employment/working age population for females aged 25-54 years old, over the 1980s, was equal to 31% in Spain and 40% in Italy (25-59 y.o.), while it was equal to 52% in Germany, 64% in the UK, and 65% in the US (OECD, 1992).

<sup>26</sup>Though, in the opposite direction, hours of work are probably more of a choice variable for female workers in the North than in the South. For instance, the share of part-time work in female employment is higher in Germany (34%) Britain (44%) or the US (26%) than in Spain (11%) or Italy (10%) (1991 data from OECD, 1993).

<sup>27</sup>In particular, we run the same regressions of Table 1 with interactions between  $\Delta U_{it}$  and dummies capturing the different combinations of employment status of spouses in  $t$  and  $t - 1$ . Alternatively we also included these dummies separately in the regressions. In all cases, the estimates of  $\gamma$  remained essentially unchanged.



A first piece of evidence on the role of extended family networks comes from the casual observation that in the North members of the same family are often scattered all over the country while in the South they are more likely to live in the same place, often for several generations. This casual observation is consistent with the available evidence on regional migration rates presented in Table 6 for our five countries. The fraction of the population which changes region in one year is on average significantly smaller near the Mediterranean. Note in particular that Spain –the country in our sample in which consumption losses due to unemployment are smallest– features regional migration rates that are less than half of those observed in the northern countries. Inasmuch as regional mobility increases the physical distance between members of the same extended family, we might expect ties between relatives to be weaker the higher is mobility. However, migration does not necessarily imply higher geographical scattering of family members if, for example, families tend to move together.

More direct evidence on the fact that physical distance between family members is shorter in southern countries is offered by panel A of Table 7, which is drawn from the same samples of households used in Table 1. The fraction of households in which relatives other than parents and children are present is significantly larger in Spain and Italy. Also with respect to this indicator Spain does appear to be the country in which extended family ties are stronger: 18% of the Spanish households host such relatives while, at the opposite end, only 4% of the British households do so. For all pairwise comparisons, the hypothesis that this indicator is greater in southern than in northern countries cannot be statistically rejected and the size of the differences is large.

The figures just described are consistent with the hypothesis that in

southern countries parents tend to remain close to their children even when the children have formed new households. In Italy, 45% of all married Italians aged up to 65 live within a single kilometer of at least one parent after marrying.<sup>28</sup> We do not have similar information for the other countries, but we suspect that the corresponding numbers would be much lower in the North. It is also true that in the southern countries children wait longer before leaving their parents' house to form new households. According to the Labor Force Surveys collected by Eurostat (1997), in 1995, the fraction of youngsters between 25 and 29 years of age still living with their parents was 59% in Spain and 56% in Italy. The corresponding figures for Great Britain and Germany were respectively 17% and 21%. The evidence based on our household samples confirms this finding. Panel B of Table 7 reports the average age of the children living in the household. Spain and Italy display again higher values of this indicator and all the pairwise differences with respect to the northern countries are statistically significant and large in size. The two extreme cases are Italy and Britain: their respective figures are 18 and 9 years old.

These results are suggestive of some kind of reciprocity game which keeps close together parents and children in southern countries during their entire life cycles. The task of exploring the cultural, institutional, and economic reasons for this phenomenon is beyond the goals of this paper. We take it as given and just argue that in countries where growing children take very long to leave their parents and where grown-up children stay close to their parents, it is conceivable that the two generations might be more likely to help each other in case of unemployment. Note, however, that while conceivable, this

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<sup>28</sup>See ISTAT (1999), p. 102. Also, 15% live in the same building. Of those who do not live with their mother, 77% see her at least once a week; 58% of married sons and 65% of married daughters see her every day, 70% phone her every day. See "Mamma mia", *The Economist*, April 1st-7th 2000.

is not at all necessary. In a world of developed financial markets, physical distance may not prevent relatives from helping each other financially in case of need. To strengthen our evidence on family ties we also need to show that economic transfers within extended family networks are more frequent in southern countries.

Our household samples offer some interesting pieces of evidence pointing precisely in this direction. Panel C of Table 7 shows that the fraction of households living in an inherited home (presumably from relatives) is 11% in Italy and 6% in Great Britain, and the difference is statistically significant. Unfortunately, we do not have comparable evidence for the other countries, but at least for these two the result is consistent with the view that economic intergenerational transfers within extended families are more frequent in the South.<sup>29</sup>

Anecdotal evidence suggests that in Spain and Italy these transfers do not involve only standard economic assets, but even jobs. Until recently, around half of all Spanish sectoral collective agreements included clauses by which offspring (and sometimes also relatives) of workers –either employed, retired, or even dead– had to be given priority in hiring.<sup>30</sup> In Italy, several firm-level union contracts include clauses requiring the firm to hire the offspring of retiring workers.<sup>31</sup> Even if this clause is not explicitly stated in contracts,

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<sup>29</sup>This is consistent with family ties being stronger in the South, but it certainly does not prove they are. It may be that, due to housing market regulations or tax systems, say, bequests take the form of housing rather than other forms more often in the South than in the North. Or it could be that, for similar reasons, families in the South tend to hold a greater share of their wealth in housing. Indeed, among our four European countries, the proportion of owner-occupied housing is highest in Spain (78%), similar in Italy (68%) and the UK (67%), and lowest in Germany (38%) (MacLennan *et al.*, 1999).

<sup>30</sup>Such clauses were present in Francoist labor regulations (*ordenanzas laborales*) dating from the 1970s and –although ruled illegal by the Workers Statute of 1980– most of them, included in sectoral wage bargains, were in place until the end of 1995. Examples include coalmining, airlines, gas stations, hotels and catering, etc.

<sup>31</sup>See the contracts listed in table 9.3 of Fabbri and Rossi (1997). For example, the 1992 National Contract for Airport Assistants states: “When hiring, the employer will consider

firms' personnel offices often implement it. This type of clauses are almost unheard of in either Germany<sup>32</sup> or Britain, not to speak of the US.<sup>33</sup>

Evidence on bequests is indicative of strong economic ties within families but may not say a lot on the types of transfers which are more relevant for the purposes of this paper, i.e. those having to do with unemployment and hardship. A more direct result supporting our hypothesis is displayed in panel D of Table 7. This panel shows that the fraction of households declaring to have received financial help from relatives in other households is 38% in Spain and 11% in Italy. This frequency is significantly smaller in Great Britain (1%) and the US (6%). This is a quite convincing indication that economic support within extended family networks is more frequent in the South. Lastly, panel E of Table 7 displays a related interesting fact. In Spain and Italy (but also in the US) the odds of declaring that help has been received from relatives are higher among households in which the male head is unemployed.<sup>34</sup> This finding is particularly strong in Italy, where the odds of help are 7 times higher if the male head is unemployed. The two last

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with particular favor the relatives (spouses and up to twice removed) of ex-employees died or laid off because of seniority, taking into account the titles and the requirements of the candidates." (art. 3, p.13). This article has been confirmed in the 1999 renewal. Recently, the Supreme Court has also decided in favor of these clauses (see: Sez. Lav. 1 luglio 1999, n. 6764). This is consistent with evidence of lower intergenerational mobility in terms of occupations in Italy than in the US, as shown by Checchi, Ichino, and Rustichini (1999).

<sup>32</sup>Source: Thomas Bauer (Institute for the Study of Labor (IZA), Bonn). Moreover, short inspection indicated there was only one German company agreement providing this type of priority rule (source: Dr. Reinhard Bispinck, Institute for Economic and Social Research (WSI) in the Hans Böckler Foundation of the German trade unions).

<sup>33</sup>In the UK, such clauses do not exist in formal agreements. They existed informally where there was a pre-entry closed shop (e.g. Smithfield Meat Market, docks, Fleet Street, and trawlers). All closed shops, including pre-entry ones, were abolished in the early 1980s. As to the US, such clauses existed in the General Motors plant in Flint, Michigan (source: David Metcalf, London School of Economics).

<sup>34</sup>The odds are defined as the ratio between the probability of receiving versus the probability of not receiving help. A ratio greater than 1 in Table 7 indicates that households in which the male head is unemployed are more likely to receive help than households in which he is not.

panels of Table 7 jointly suggest not only that in Italy and Spain financial transfers within extended families are more frequent but also that they tend to kick in more frequently when unemployment hits a household.

Note that as far as the last indicator is concerned, the US resembles the Mediterranean countries more than Great Britain. However, we have shown in Section 4.1 that this similarity holds to some extent also for the generosity of the public welfare system. This is consistent with the view that whenever the Welfare State fails to mitigate the consequences of unemployment, the demand for family support increases. The fact that nevertheless the US displays larger consumption losses than Mediterranean countries suggests that the supply of family support is weaker on the western side of the Atlantic.<sup>35</sup> It also suggests that their heavier reliance on family networks allows Mediterranean households to smooth income instability even better than US ones.

Our findings naturally raise the question of whether Welfare State insurance increases the total level of insurance available to individuals or whether it merely crowds out insurance provided by family networks. This issue has been examined in the literature. For instance, Attanasio and Rios-Rull (2000) show the conditions for the latter to happen in a dynamic general equilibrium framework (see also the references therein).

Di Tella and MacCulloch (1998) analyze this issue regarding unemployment. They start by recognizing that individuals may renege ex-post on their commitments in family insurance schemes and that public transfers such as unemployment benefits tend to reduce job-search efforts, thus creating moral

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<sup>35</sup>Gottschalk and Moffit (1994) and Dynarski and Gruber (1997) provide evidence of an increasing instability of earnings in the US, during the 1980s and early 1990s, which arguably made consumption smoothing more difficult. Dynarski and Gruber examine the extent to which such instability is absorbed in terms of consumption, concluding that "(US) families are well able to smooth variations in the earnings of household heads and that a substantial fraction of this smoothing is due to transfers from outside the households". Unfortunately they do not decompose these transfers into public and family-originated.

hazard problems. They assume the State and the family each enjoy a different advantage. On the one hand, the State can fully enforce risk-sharing contracts through its power to tax the employed, while families only have self-enforcing contracts available. On the other hand, the State is unable to perfectly monitor the job-search activities of family members, while families can do so. They find that, under these assumptions, increases in public transfers crowd out family transfers even more than one-for-one. This happens for two reasons. First, increases in State benefits makes defecting from the informal family risk-sharing contract more attractive, so that family transfers must be reduced beyond the increase in State benefits so as to keep the family contract incentive compatible. Second, since higher State benefits reduce search effort and increase unemployment, employed family members bear a greater tax burden to support greater numbers of unemployed and so they become more willing to defect. Therefore, family transfers must be reduced further, again for incentive compatibility reasons. These results provide one potential justification for why consumption may actually fall more in the North, where the Welfare State is more developed, than in the South, where family insurance is more important.

One last caveat is that the above authors assume that the family is quite large, so that it can pool risks over a large number of agents. In fact, the extended family is relatively small, in that family members living in the same city are likely to suffer from correlated location-, firm- and sector-specific shocks. On these grounds, the State should be a better insurance provider than the extended family. In spite of this, our empirical results still suggest that more insurance is available in countries where family ties are stronger.

The evidence in this section does not provide airtight proof of our claim. It does however convey an overall picture supporting the hypothesis that the

extended family is the institution that makes unemployment less painful near the Mediterranean.

## 6 Conclusions

Our starting piece of evidence is that an increase in the duration of unemployment of male household heads is associated with larger consumption losses in Germany, Great Britain, and the US than in Spain or Italy. This finding suggests that in the two latter countries unemployment is less painful. It might also explain why, so far, the high and persistent unemployment rates prevailing near the Mediterranean have not caused substantial social unrest.

The second step of our analysis is to explore the possible institutions and mechanisms that make unemployment more bearable near the Mediterranean. Our finding is that the observed cross-country differences cannot be explained by the standard stories one can tell to justify a relationship between changes in unemployment and changes in consumption. Indeed, financial markets seem less developed in the South, suggesting that in the latter liquidity constraints are likely to be more binding. Hence, countries like Spain and Italy should feature larger deviations from the pure life cycle hypothesis. Public welfare could be the institution that supplements the underdeveloped credit and insurance markets of the South but our evidence suggests, on the contrary, that welfare provisions in favor of the unemployed are more generous in Germany and Great Britain than in Spain and Italy. Differences in the association between unemployment and consumption across countries could in principle be attributed to differences in preferences for leisure and consumption in case these variables are non-separable in the utility function. Although we cannot support our claim with hard evidence on preferences, we find it unlikely that these differences have the size and the sign that are

required to explain the observed evidence.

Searching for other explanations, we argue that extended family networks constitute the social institution which plays the crucial role of reducing the cost of unemployment near the Mediterranean. The evidence we can muster for this hypothesis certainly does not prove it, but we think it makes a convincing case in its favor. In Spain and Italy the family appears to supplement for the lack of generosity of the welfare system and for the imperfection of capital markets. It should be noted, however, that the nexus of causality between the role of the family and the role of the Welfare State is not obvious. One could for example argue that the relatively greater generosity of the welfare system in countries like Germany and Great Britain is a response to the weakness of family networks. Judging from the resulting cost of unemployment in terms of consumption, however, the Mediterranean family-based system seems to be the most effective one in insulating households from the detrimental welfare consequences of unemployment. The US system stands apart, in that it is characterized by a stingy welfare system which is not sufficiently supplemented by family networks, resulting in relatively large consumption losses associated with unemployment.

It could be argued that the underground economy offers an additional explanation for our finding, because it is larger in the South than in the North. In other words, there would be a higher probability in the former than in the latter countries that somebody who reports in our surveys to be unemployed could actually be working underground. The absence of reliable data clearly makes it impossible for us to evaluate the relevance of this explanation. But the limited information we have does not suggest this would be the critical factor explaining our results. In particular, we can draw on a survey which was carried out in Spain in the Fall of 1985 for the purpose



of gauging the importance of the underground economy (see Muro *et al.*, 1988). It was found that only 4% of employed heads-of-household were both working underground –defined as not registered as employed with the social security system– and officially counted as unemployed. The reason is that the vast majority (66%) of heads-of-household with an underground job also had another, fully registered job, while 15% were either retirees or disabled workers; the unemployed represented only 10%.

We also believe the underground economy is likely to be complementary and not alternative to the family explanation. Indeed, the extended family and the underground economy are probably linked, rather than being orthogonal to each other: the family is likely to be a key channel of access to the underground economy.

Independently of the direction of causality, the Mediterranean family based solution seems to produce a desirable outcome from a welfare point of view, in that it seems to allow for more consumption smoothing. And given the presumably lower costs that family monitoring of unemployed workers entails, vis-à-vis State monitoring, it may also be an efficient device. However, such an arrangement may also bring its own costs. It is likely to raise the average duration of unemployment and the equilibrium unemployment rate, as well as the costs of geographic mobility, thus raising the persistence of regional unemployment differentials.

Thus extended family networks –like any other unemployment insurance mechanism– have the desirable welfare effect of making the consequences of unemployment more bearable, while at the same time entailing efficiency costs. Currently the sustainability of Welfare State systems is very much debated, but one should not forget that questions also arise about the family-based southern systems. In particular, they may hinder the response to

accelerated technological progress, which requires more flexible labor markets and higher occupational and geographical mobility of the workforce. In this sense, the Mediterranean arrangement may eventually become too costly, requiring some future *painful* adjustment in countries like Spain and Italy.

## Data appendix

The evidence presented in this paper is based on five longitudinal household surveys: the Spanish *Continuous Family Expenditure Survey* (ECPF), the Bank of Italy *Survey of Household Income and Wealth* (SHIW), the *German Socio-Economic Panel* (GSOEP), the *British Household Panel Survey* (BHPS), and the US *Panel Study of Income Dynamics* (PSID).

Publicly available surveys usually report employment status and demographic characteristics of family members but only few of them contain information also on household consumption and intra-family transfers. We have chosen the surveys mentioned above precisely because they offer this additional information. Unfortunately, however, their design and the questions they ask differ substantially in some cases. Therefore, our attempt to extract comparable datasets for each country faces some constraints and the outcome suffers from several shortcomings. Yet we believe that our pooled dataset provides sufficiently comparable and interesting information from the viewpoint of our research objectives.

### Time structure of the surveys

A first potentially important comparability problem results from the fact that the temporal design of the surveys differs across countries. In Germany, Britain, and the US the surveys take place at a yearly frequency. Although the GSOEP started in 1984, the information we need is available only for the years 1992-1995. The BHPS exists since 1991 and we are able to use all the waves up to 1995. The PSID exists instead since 1968, but we decided to restrict the analysis only to the 1980s and 1990s. Within this period, the information needed for our purposes is available only in the 1980-86 and 1989-92 waves. The SHIW exists since the seventies but it has a panel

structure with sufficient information only in 1991, 1993, and 1995. Since this structure imposes a one-year gap, we repeated the estimation of the change in consumption also allowing for such a gap in the other countries (except Spain, where the data do not allow for it) and the results were qualitatively the same as those reported in the text. Note also that the Italian sample has a partially rotating structure: some households are interviewed in all three years while others are interviewed only in a couple of years. Significantly more divergent is the design of the ECPF, which is a survey with a quarterly rotating structure. So, for Spain we have information on households observed for eight consecutive quarters in the period between 1986 and 1996. For the comparison between Spain and the other countries we have annualized the quarterly Spanish observations. In this way we obtained, for each Spanish household, two observations corresponding to two consecutive periods of four quarters each. Whenever Spain is analyzed we include in the estimation a set of dummies for the quarter in which a household begins to be observed.

## **Variables extracted from the surveys**

The comparability of the information on unemployment, consumption, and demographic variables in the five countries is another issue of potential concern for the interpretations of the results presented in Table 1. From each survey we extracted the following information.<sup>36</sup>

### *1. Indicators of unemployment.*

As an indicator of the extent to which a household is affected by unemployment we use the number of months during which the male head

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<sup>36</sup>Extended documentation on the variables extracted for the analysis is available from the authors.

is unemployed in each year.<sup>37</sup> The GSOEP allows us to construct this variable on the basis of the self-declaration of each male head because each member of the household is interviewed. In the other surveys, instead, one household member answers for all other members. Note that this different way of collecting information may introduce measurement error. It is reassuring to observe that the wording of the questions concerning employment status are very similar across countries. However, the definition of unemployment implied by these questions (i.e. not employed and searching at the time of the interview) is not necessarily equivalent to the official country-specific definitions of unemployment. In all our datasets there exist also a second type of employment status questions which gives information on whether the male head was unemployed at a precise date during a year. We exploit these questions to construct the instrument used in the IV estimation of Table 1 (see Section 2).

## 2. *Indicators of household consumption.*

We would have liked to obtain indicators of total, durable, and non-durable consumption for all five countries, but unfortunately not all surveys provide the same amount and type of information from this viewpoint. The ECPF is the richest one because it contains actual expenditures for a complete set of non-durable and durable consumption items; hence, it offers the possibility of creating consumption indicators at different aggregation levels. The SHIW contains aggregate indicators for total, durable, and non-durable consumption expenditures, but does not provide more disaggregated information. The GSOEP allows

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<sup>37</sup>We experimented also with other indicators like dummies for the unemployment status of various members, or the unemployment rate at the household level, obtaining qualitatively similar results.

us to reconstruct a total consumption variable, but only as the difference between total income and total savings. Finally, the BHPS and the PSID offer information only on food expenditures. A sensible cross-country comparison appears, therefore, possible only for the following cases:

- Total consumption expenditures for Spain, Germany, and Italy, with the important caveat that while in the SHIW and the ECPF the indicator is constructed from direct questions on consumption expenditures, in the GSOEP it is given by the difference between income and savings.
- Food expenditures for Spain, Italy, Great Britain, and the US.

### 3. *Demographic indicators for each household.*

This is the category of variables in which we encounter less comparability problems given the objective nature of the variables on which we focus. These are: the number of members, broken down into three groups: children aged less than 14 years old, children between 14 and 25 years old, and adults (male and/or female heads plus other members older than 25 years old); the fraction of females in the household; an indicator for the presence also of a female head; and the age and education of parents.

### 4. *Indicators of family ties and other variables.*

We searched extensively the original data sets for information on the strength of family ties finding the set of indicators reported in Table 7. We also extracted other household information for auxiliary purposes and for possible extensions of the analysis (for example household income which we use for the control of outliers, as explained below.).

## Observations extracted from the surveys

From the original samples we select the observations used in the analysis on the basis of three sets of criteria. First, we keep the households in which a male head is present and for which our analysis is less likely to suffer from evident potential confounding factors. This implies excluding households in which the identity of the male head changes from year to year. Moreover, for Germany, we exclude East Germans, whose behavior might be peculiar owing to the transition to the market economy, as well as recent immigrants. These filters leave us with a sample of 116,212 household-year observations for the five countries, which we consider as our starting sample.

The second set of criteria requires the exclusions of all the observations for which one of the variables used in our analysis is missing or clearly wrong (e.g. negative or null consumption). These filters reduce the sample size by approximately 3%, leaving us with 112,427 observations. No country appears to be evidently more prone to loss of observations in this selection step.

The third set of criteria aims at eliminating outliers with respect to household income, which are likely due to misreporting. We drop within each country the top and bottom 1% of the real income distribution. As a result, the sample is further reduced to 109,893 observations, which implies an additional 2% loss. This (unbalanced) panel of household-years observations contains information on 36,223 households in five countries and is used for the statistics displayed in Table 7.

Using this panel, we can construct 68,329 within-household yearly first-differenced observations. The sample used in the regressions displayed in Table 1 is obtained from these first differenced observations, with the additional restriction, justified in Section 2, that the male household head has to be fully employed during year  $t - 1$ . With this restriction we obtain the

60,408 first differenced observations which constitute the actual sample on which the results presented in Tables 1 are based. Table 8 describes the time structure of this sample, while Tables 9 to 13 report, separately for each country, the descriptive statistics of the variables used in the regressions and of some other relevant variables in levels. For these variables in levels the statistics refer to the second time observation of each difference.



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Table 1: Consumption losses (in %) and duration of unemployment in five countries.

	Total consumption		Food consumption		N. of obs.
	OLS	IV	OLS	IV	
Spain	-0.0 (0.4)	-0.2 (0.5)	-0.4 (0.3)	-0.2 (0.4)	6,115
Italy	-0.5 (0.4)	-0.5 (0.4)	-0.6 (0.5)	-0.6 (0.5)	5,429
Germany	-1.5* (0.4)	-3.1* (0.9)	—	—	6,843
Britain	—	—	-0.6~ (0.3)	-1.3~ (0.5)	10,766
US	—	—	-0.7~ (0.3)	-0.9 (1.0)	31,471

For each country and consumption indicator the table reports, in percentage form, OLS and IV estimates of the coefficient  $\gamma$  based on equation (1). A different regression is estimated for each country. Descriptive statistics for the household samples used in the regressions are given in Tables 9 to 13. The dependent variable  $\Delta \ln C_{it}$  is the change in the log of the corresponding consumption indicator of each household.  $\gamma$  is the coefficient attached to variable  $\Delta U_{it}$ , which measures the change in the number of months of unemployment experienced by the male head of the household. The sample is restricted to households in which the head was never unemployed at  $t-1$ . Hence,  $\Delta U_{it}$  is either equal to zero or positive. The regression includes also the changes in the number of children aged less than 14, in the number of children aged between 14 and 19, in the number of other household members, and in the fraction of females in the household, as well as the levels of the age and years of schooling of the male head, and a dummy for home ownership (lagged). Year dummies (quarter dummies for Spain) are also included. To take care of measurement error in  $\Delta U_{it}$ , the instrument for the IV estimates is an indicator of unemployment status of the male head constructed on the basis of a question different from the one used to compute the duration of unemployment (see Section 2). Robust standard errors, adjusted for within-household serial correlation, are reported in parentheses, with  $p < 0.05 = \sim, p < 0.01 = *$ .

Table 2: Social protection and economic variables (1990).

Country	Social protection expendit. (% GDP)	Unempl. benefits Narrow definition (% GDP)    (% wage)		Unem- ployment rate (%)	GDP per capita (Int. \$) <sup>1</sup>
	(1)	(2)	(3)	(4)	(5)
Spain	20.4	3.6	45.0	15.9	11,765
Italy	24.1	0.4	11.8	10.3	15,309
Germany	25.4	1.4	47.2	4.8	18,235
Britain	23.1	1.3	34.8	6.9	15,741
US <sup>2</sup>	14.1	0.4	—	5.4	21,827

<sup>1</sup> Current international dollars.

<sup>2</sup> US figures are not directly comparable to the remaining countries' ones.

Sources: (1)-(3) Authors' calculations on Eurostat (1998), Tables B 1.1, C 1.1.6-8. Wage rate in the business sector from OECD (1999). US data from OECD (1996). (4) Standardized unemployment rates from OECD (1995). (5) Source: World Bank World Tables (Mark 5.6).

Table 3: Details on unemployment benefit systems (1990-1995).

Country	Replacement rates (% of previous wage)		Max. benefit duration (months)		Long-term unempl. (1990, %)	U. benefit coverage (1991, %)
	Nickell	OECD Yrs. 3-5	Nickell	Blanchard- Wolfers		
	(1)	(2)	(3)	(4)	(5)	(6)
Spain	70	0.0	42	22	54.0	29
Italy	20	0.0	6	12	69.8	19
Germany	63	23.2	Indef.	42	46.8	64
Britain	38	15.7	Indef.	44	34.4	62
US	50	4.7	6	12	5.6	—

(1) and (3): Averages for the period 1989-1994. Source: Nickell (1997), Table 4.

(2) Measure with equal weights to replacement rates for years 3 to 5 in unemployment. Source: Blanchard and Wolfers (1999) Data Appendix, itself taken from OECD Database on benefits and entitlements.

(4) Number of years over which a worker can get the maximum replacement rate (see text). Source: Blanchard and Wolfers (1999) Data Appendix.

(5) Unemployed for more than one year as a percentage of total unemployment. Source: OECD (1995), Table L.

(6) Percentage of unemployed who report receiving benefits in the Labor Force Survey (LFS). “—” denotes a missing value. Source: OECD (1994), Table 8.4.

Table 4: Composition of net benefit income and net replacement rates including various benefits (1995).

A. Composition of benefit income (%)

Country	First month of receipt				60th month of receipt			
	UI	Family benefit	Housing benefit	Income taxes	UA	SA	Family benefit	Housing benefit
Spain	102	3	–	–5	0	92	8	–
Italy	78	23	–	–1	–	–	100	–
Germany	83	7	10	0	71	9	7	13
Britain	50	12	38	0	0	55	11	34
US	104	0	0	–4	–	37	63	0

B. Net replacement rates including various benefits (% of previous wage)

Country	First month	60th month
Spain	76	46
Italy	47	11
Germany	80	73
Britain	67	76
US	59	51

Panel A. UI = Unemployment insurance, UA = Unemployment assistance, SA = Social assistance. Data for a one-earner couple with two children previously obtaining the average production worker (APW) earnings. Source: OECD (1998), Tables 3.3 and 3.6.

Panel B. Replacement rates include unemployment, family, and housing benefits. Data for a married couple with two children and APW earnings. Source: OECD (1998), Tables 3.1 and 3.4.

Table 5: Indicators of liquidity constraints.

Country	Maximum loan-to-value ratio (%) 1981-87	Typical loan-to-value ratio (%) 1997	Typical term (years) 1997	Consumer credit (% NNP) 1980	Mortgage debt (% GDP) 1998
	(1)	(2)	(3)	(4)	(5)
Spain	80	70-80	15-20	4.9	22
Italy	56	40	15	2.5	7
Germany	80	60-80	25-30	7.9	51
United Kingdom	87	90-95	25	5.7	57
United States	89	—	—	16.1	—

(1) and (2) Maximum and typical loan-to-house value ratio for mortgages, respectively. (3) Typical term for mortgages. (4) Consumer credit as a percentage of net national product. (5) Mortgage debt a percentage of gross national product. Sources: Jappelli and Pagano (1993) for (1) and (4), MacLennan *et al.* (1999) for the remainder.

Table 6: Regional mobility.

Country	1973-79	1980-87	1993
Spain	0.5	0.4	0.6
Italy	0.8	0.6	0.5
Germany	1.4	1.1	1.2
United Kingdom	1.1	1.1	1.6
United States	3.0	2.9	2.8

Average regional migration rates defined as the percent of the population of the departure region who change region in each year. The source for Spain over 1973-87 is Bentolila and Dolado (1991). The other sources are: for 1973-87, OECD (1990), Table 3.3; for 1993, MacLennan *et al.* (1999).



Table 7: Indicators of family ties.

	Spain	Italy	Great Britain	United States	Germany
<i>A. Fraction of households with living-in relatives</i>					
Fraction	0.18	0.08	0.04	0.06	0.04
St. error	(0.013)	(0.005)	(0.003)	(0.004)	(0.004)
N. of obs.	820	2749	2903	4259	2423
<i>B. Average age of children living at home</i>					
Age	15	18	9	11	13
St. error	(0.3)	(0.2)	(0.2)	(0.2)	(0.2)
N. of obs.	571	1946	1375	2341	1328
<i>C. Fraction of households with inherited home</i>					
Fraction	–	0.11	0.06	–	–
St. error		(0.006)	(0.009)		
N. of obs.		2749	796		
<i>D. Fraction of households receiving financial help from relatives</i>					
Fraction	0.38	0.11	0.01	0.06	–
St. error	(0.017)	(0.006)	(0.002)	(0.004)	
N. of obs.	820	2699	2903	4259	
<i>E. Odds of receiving help from relatives if male head is unemployed</i>					
Fraction	1.07	6.91	0.88	4.50	–
Asy. t-stat	(0.62)	(9.34)	(0.28)	(18.56)	
N. of obs.	6794	5478	11892	37062	

Statistics based on the samples of households described in the Data Appendix, for the year 1995 (1992 for the US, 1991 for the fraction of households with inherited home in Great Britain, all years for the odds of receiving help in case of unemployment). In the first four panels, the hypothesis that the indicators for southern countries are larger than the indicators for northern countries can never be rejected in pairwise one-sided tests of the differences between countries. P-values are always smaller than 0.0001 except for the Italy-US difference in the fraction of households with living-in relatives, for which the p-value is 0.0087. The last panel reports odds ratios estimated separately for each country with logit model of the probability of declaring that help has been received. A ratio greater than 1 indicates that households in which the male head is unemployed are more likely to receive help than households in which the male head is not unemployed. The asymptotic t-statistic refers to the hypothesis that the odds ratio is equal to 1.

Table 8: Time structure of the data.

year	Spain	Italy	Germany	Britain	US	Total
1981	0	0	0	0	3294	3294
1982	0	0	0	0	3267	3267
1983	0	0	0	0	3177	3177
1984	0	0	0	0	3333	3333
1985	0	0	0	0	3467	3467
1986	0	0	0	0	3596	3596
1988	351	0	0	0	0	351
1989	721	0	0	0	0	721
1990	703	0	0	0	3785	4488
1991	729	0	0	0	3837	4566
1992	710	0	0	2817	3715	7242
1993	748	2725	2352	2683	0	8340
1994	726	0	2259	2637	0	5622
1995	727	2704	2232	2629	0	8244
1996	700	0	0	0	0	700
Total	6115	5429	6843	10766	31471	60408

For each country and each year the table reports the number of non-missing observations on the first-differenced variables used for the regressions reported in Table 1.

Table 9: Descriptive statistics for the Spanish panel.

Variable	Mean	St. Dev.	Min.	Max.
Total consumption	2207	1279	246	10487
$\Delta\%$ total consumption	-0.02	0.32	-1.75	1.82
Food consumption	393	187	29	1998
$\Delta\%$ food consumption	-0.03	0.28	-2.06	2.01
Male head unemployed	0.02	0.13	0	1
Duration of male head's unemployment	0.15	1.06	0	12
$\Delta$ duration of male head's unemployment	0.15	1.06	0	12
N. of adults	2.35	0.72	1	7
$\Delta$ n. of adults	0.01	0.33	-2	3
N. of children < 14	0.62	0.89	0	5
$\Delta$ n. of children < 14	-0.05	0.32	-2	2
N. of children 14–25	0.69	0.98	0	7
$\Delta$ n. of children 14–25	-0.01	0.41	-3	6
Female rate	0.48	0.17	0	0.86
$\Delta$ female rate	0	0.06	-0.67	0.50
Male head's age	53.50	14.42	18	99
Male head's education	6.35	3.82	0	17
Home ownership	0.83	0.38	0	1
Wife present	0.95	0.23	0	1

Descriptive statistics based on the 6115 household-year observations for which complete information is available in the Spanish panel. Monetary variables are in 1000 Spanish pesetas.

Table 10: Descriptive statistics for the Italian panel.

Variable	Mean	St. Dev.	Min.	Max.
Total consumption	34854	18983	3000	304900
$\Delta\%$ total consumption	-0.01	0.41	-2.27	2.14
Food consumption	11185	5101	600	60000
$\Delta\%$ food consumption	0.01	0.46	-3.27	2.72
Male head unemployed	0.02	0.13	0	1
Duration of male head's unemployment	0.20	1.50	0	12
$\Delta$ duration of male head's unemployment	0.20	1.50	0	12
N. of adults	2.24	0.70	1	8
$\Delta$ n. of adults	0.04	0.42	-4	4
N. of children < 14	0.52	0.84	0	5
$\Delta$ n. of children < 14	-0.05	0.39	-3	2
N. of children 14–25	0.58	0.85	0	6
$\Delta$ n. of children 14–25	-0.02	0.48	-3	2
Female rate	0.46	0.18	0	0.83
$\Delta$ female rate	0	0.07	-0.75	0.75
Male head's age	53	13.48	24	91
Male head's education	8.65	4.43	0	20
Home ownership	0.66	0.47	0	1
Wife present	0.93	0.26	0	1

Descriptive statistics based on the 5213 household-year observations for which complete information is available in the Italian panel. Monetary variables are in 1000 Italian Liras.

Table 11: Descriptive statistics for the German panel.

Variable	Mean	St. Dev.	Min.	Max.
Total consumption	45403	20305	4800	504000
$\Delta\%$ total consumption	0	0.29	-2.62	3.11
Food consumption	—	—	—	—
$\Delta\%$ food consumption	—	—	—	—
Male head unemployed	0.01	0.12	0	1
Duration of male head's unemployment	0.18	1.17	0	12
$\Delta$ duration of male head's unemployment	0.18	1.17	0	12
N. of adults	2.04	0.63	1	12
$\Delta$ n. of adults	0	0.33	-5	7
N. of children < 14	0.58	0.91	0	5
$\Delta$ n. of children < 14	0.01	0.30	-2	2
N. of children 14–25	0.32	0.65	0	5
$\Delta$ n. of children 14–25	0	0.28	-2	2
Female rate	0.43	0.20	0	0.86
$\Delta$ female rate	0	0.07	-0.67	0.75
Male head's age	47.43	14.53	21	94
Male head's education	11.92	2.81	7	19.50
Home ownership	0.44	0.50	0	1
Wife present	0.88	0.32	0	1

Descriptive statistics based on the 6843 household-year observations for which complete information is available in the German panel. Monetary variables are in German Marks. “—” indicates that the variable is missing for Germany.

Table 12: Descriptive statistics for the British panel.

Variable	Mean	St. Dev.	Min.	Max.
Total consumption	—	—	—	—
$\Delta\%$ total consumption	—	—	—	—
Food consumption	2819	1339	260	8840
$\Delta\%$ food consumption	0.03	0.35	-2.86	2.17
Male head unemployed	0.03	0.16	0	1
Duration of male head's unemployment	0.19	1.23	0	12
$\Delta$ duration of male head's unemployment	0.19	1.23	0.00	12
N. of adults	1.93	0.49	1	7
$\Delta$ n. of adults	-0	0.27	-5	5
N. of children < 14	0.55	0.94	0	5
$\Delta$ n. of children < 14	-0	0.30	-4	3
N. of children 14–25	0.25	0.59	0	4
$\Delta$ n. of children 14–25	0	0.30	-3	2
Female rate	0.42	0.21	0	0.86
$\Delta$ female rate	-0	0.08	-0.80	0.80
Male head's age	49.50	16.09	19	93
Male head's education	10.73	1.37	5	21
Home ownership	0.80	0.40	0	1
Wife present	0.83	0.37	0	1

Descriptive statistics based on the 10766 household-year observations for which complete information is available in the British panel. Monetary variables are in British Pounds. A “—” indicates that the variable is missing for Britain.

Table 13: Descriptive statistics for the US panel.

Variable	Mean	St. Dev.	Min.	Max.
Total consumption	—	—	—	—
$\Delta\%$ total consumption	—	—	—	—
Food consumption	4633	2646	27	85800
$\Delta\%$ food consumption	0	0.46	-5.86	5.05
Male head unemployed	0.02	0.14	0	1
Duration of male head's unemployment	0.23	1.14	0	12
$\Delta$ duration of male head's unemployment	0.23	1.14	0	12
N. of adults	1.98	0.61	1	13
$\Delta$ n. of adults	0	0.39	-7	6
N. of children < 14	0.84	1.09	0	8
$\Delta$ n. of children < 14	0.01	0.42	-5	4
N. of children 14–25	0.30	0.71	0	8
$\Delta$ n. of children 14–25	0	0.35	-5	3
Female rate	0.43	0.21	0	0.89
$\Delta$ female rate	0	0.11	-0.80	0.80
Male head's age	42.90	15.18	17	95
Male head's education	12.50	2.97	1	17
Home ownership	0.68	0.47	0	1
Wife present	0.85	0.36	0	1

Descriptive statistics based on the 31471 household-year observations for which complete information is available in the US panel. Monetary variables are in US Dollars. A “—” indicates that the variable is missing for the US.