

**Economic Inequality in Spain:
The European Union Household Panel Dataset
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ECONOMIC INEQUALITY IN SPAIN: THE EUROPEAN UNION HOUSEHOLD PANEL DATASET

Santiago Budría and Javier Díaz-Giménez¹

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Summary: This article uses data from the 1998 European Union Household Panel to study economic inequality in Spain. It reports data on the Spanish distributions of income, labor income, and capital income, and on related features of inequality, such as age, employment status, educational attainment, and marital status. It also reports data on the income mobility of Spanish households. We find that income, earnings, and, very especially, capital income are very unequally distributed in Spain.

Keywords: Inequality; Income distribution; Labor earnings distribution; Capital Income distribution;

JEL Classification: D310 (Personal Income and Wealth Distribution) J310 (Wage Level and Structure, Wage Differentials by Skill, Training, Occupation, etc.)

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1 Introduction

- *Purpose.* The purpose of this article is to report facts on the distributions of income, earnings, capital income, and transfers in Spain. Even though our understanding of inequality has advanced significantly in the last few years, there is still no established theory to help us organize the data. Therefore, we have attempted to report the data in a format that satisfies the following two criteria: it should be possible to analyze the data with any given theory of inequality, and it should be possible to use the data to test the implications of any given theory of inequality. Thus, the pages that follow are an attempt to highlight the main features of the data in a coherent and summarized fashion. This article, however, is not an attempt to carry out a thorough statistical analysis of the data.

- *The Dataset.* The data reported in this article have been obtained from the 1998 and the 1994 waves of the Spanish survey of the European Union Household Panel (henceforth, Europanel) in which the households were asked to report their economic data of 1993 and 1997, respectively. In Section 2 below we discuss some of the main features of this dataset.

- *Inequality is multidimensional.* The complexity of the problem of inequality has forced us to concentrate on the study of some of its dimensions and to ignore many others. Specifically, the dimensions of inequality which we describe in this article are the following:

- *Income, earnings, and capital income inequality.* Together with wealth, income and earnings inequality are the three dimensions of inequality that are most frequently studied. Since the Europanel does not include data on wealth, in this article we study the distributional features of income and its main components: labor earnings, capital income and transfers. Labor earnings is the sum of net labor income from both paid employment and self-employment. Capital income is the sum of net capital and property income. Transfers are the sum of both private and public transfers. In Section 3 below we discuss the definitions of these variables in greater detail.

To document some of income, earnings, and capital income inequality facts we rank the 1998 Spanish Europanel households along each one of these three dimensions and we study the resulting distributions. We find that capital income, with a Gini index of 0.95, is by far the most concentrated of the three variables; that earnings, with a Gini index of 0.57, ranks second; and that income, with a Gini index of 0.39, is the least concentrated of the three.² Furthermore, we find that the correlations between earnings and capital income, on

²The Lorenz curve of a distribution gives us a measure of its relative inequality. Specifically, on the horizontal axis we plot the shares of the population (e.g. the poorest 10%, the next 10%, and so on), and on the vertical axis we plot the shares of the total income, earnings, or capital income earned by that group.

the one hand, and between income and capital income, on the other, which are 0.10 and 0.44 respectively, are significantly smaller than the correlation between earnings and income, which is 0.84. In Section 4 we report these findings.

- *The poor and the rich.* Income, earnings, and capital income inequality is essentially about the differences between the poor and the rich. However, the meanings of these two words are somewhat ambiguous. When we talk about the rich, it is not clear whether we are referring to the income-rich, the earnings-rich, or to the capital income-rich, and the same ambiguity applies to the income-poor, the earnings-poor, and the capital income-poor. In Section 5 we describe the income, earnings, and capital income of the households in the tails of the corresponding distributions, and we document the ways in which these three concepts of poor and rich differ.

- *Age and inequality.* Age is one of the main determinants of income, earnings, and capital income inequality. To document this fact, in Section 6 we partition the 1998 Spanish Europanel sample into ten age cohorts, and we report some of the main income, earnings, and capital income inequality facts of the different groups in this age partition. We find that, on average, the households whose heads are between 51 and 55 years old are both the earnings and the income richest; that the households whose heads are between 61 and 65 are the capital income richest; and that, amongst working-age households, those whose head is under 25 are the income and earnings poorest. We also find that, overall, the measures of income, earnings, and capital income inequality within the different age cohorts are similar to those that obtain for the entire sample.

- *Occupation and inequality.* The main occupation of the household heads is another important determinant of inequality. To document this relationship, in Section 7 we partition the 1998 Spanish Europanel sample into workers (people who are employed by others), the self-employed, retirees, and non-workers (people who do not work but who do not consider themselves to be retired), according to the employment status of the household head. We find that the households headed by workers are, on average, the income and earnings richest; that the self-employed are, by far, the capital income richest; that the households whose head has retired are the earnings poorest; and that the households headed by a non-worker are the income poorest.

Consequently, the Lorenz curve of a variable that is exactly equally distributed is a 45 degree line, and as the inequality of a distribution increases, its Lorenz curve becomes increasingly bowed towards the bottom right corner of its graph.

The Gini index of a distribution is twice the area between its Lorenz curve and the diagonal of the unit square. Consequently, the Gini index of a variable that is exactly equally distributed is zero, and the Gini index of a variable which is completely accumulated in only one household is one.

- *Education and inequality.* Education increases the market value of people’s time. Consequently, it plays a potentially important role in determining economic inequality. To characterize the relationship between education and inequality, in Section 8 we partition the 1998 Spanish Europanel sample into college households, secondary education households, primary education households, and no-primary education households according to the education level completed by the household heads. Not surprisingly, we find that income, earnings, and capital income inequality differ significantly between these education groups. More specifically, we find that college graduates are, on average, the income, earnings, and capital income richest, and that the households whose head has not completed primary education are, on average, the income, earnings, and capital income poorest. We also find that college graduates have a significantly higher capital income to earnings ratio than the other three education groups.

- *Marital status and inequality.* To explore the relationship between marital status and inequality, in Section 9 we partition the 1998 Spanish Europanel sample into married households, single households with dependents, and single households without dependents, according to the marital status of the household head. The singles are further partitioned by sex. We report the main income, earnings, and capital income inequality facts for these seven marital status groups and we find that, as far as the economic performance of households is concerned, married people are better off. We also find that single females are significantly worse off than single males.

- *Income mobility.* Since people move up and down the economic scale, in Section 10 we report some facts about the income mobility of Spanish households. Not surprisingly, we find that the households in the middle quintiles are more mobile than those in either the lowest or the top quintiles. We also find that the income-rich are somewhat more mobile than the income-poor.³

2 The Dataset

The European Union Household Panel (Europanel) is a standardized survey that is carried out in the European Union. Its period is yearly and its purpose is to obtain “comparable information across the member states on income, work and employment, poverty and social

³Strictly speaking, the i -th quintile of a distribution F is the value in the support of that distribution that solves the equation $F(x) = 0.2i$. In this article, we discuss the shares of total income, earnings, and capital income earned by various groups: the poorest 20 percent, the next 20 percent and so on, however, we abuse the language and we call these groups quintiles. We abuse the language likewise with the other Lorenz curve groups.

exclusion, housing, health, and many other diverse social indicators concerning the living conditions of households and persons” (Eurostat, 1996).

The Europanel defines a household as a group of people that share the same dwelling and have common living arrangements. The first year in which the Spanish data was collected was 1994. The original Spanish sample was made up of 7,206 households. The survey then follows the sample people, and it includes the children born to the initial sample women and the new households formed by members of the original ones. In this and in other aspects the Europanel resembles the University of Michigan’s Panel Study of Income Dynamics (PSID).

By 1998, the Spanish sample contained only 5,427. This significant reduction of the sample size raises the issue of the representativity of the 1998 sample.⁴ As a token example of the possible differences between the 1994 and 1998 samples, in Table 1 we report the main points of the Lorenz curves of income for both. Since we find that the differences between them are insignificant, we base our study of inequality on the 1998 sample, which gives us more updated information.

Table 1: The Spanish Income Distributions in 1994 and 1998

	<i>The Poor</i>			<i>Quintiles</i>					<i>The Rich</i>			<i>All</i>
	1	1–5	5–10	1st	2nd	3rd	4th	5th	10–5	5–1	1	
<i>Shares of the Sample Totals (%)</i>												
1994	0.0	0.7	1.4	5.6	11.0	16.2	23.5	43.7	10.7	11.4	5.1	100
1998	0.0	0.6	1.4	5.4	10.7	15.9	23.3	44.6	10.7	11.1	6.4	100

Source: 1994 and 1998 Spanish Surveys of the European Union Household Panel

3 Definitions of Variables

The definitions of income, labor earnings, capital income, and transfers that we use in this article are the following:

- Income: we define income as the sum of labor earnings, capital income, and transfers.
- Labor earnings: we define labor earnings as the sum of net labor income from both paid employment and from self-employment.

⁴Peracchi (2002) provides an excellent technical discussion on the methods used to deal with the problems created by attrition and non-response in the Europanel.

- Capital income: we define capital income as the sum of net capital income and net property income.
- Transfers: we define transfers as the sum of both private and public transfers. Private transfers include both *inter-vivos* transfers and bequests. Public transfers include retirement pensions and old-age benefits, unemployment compensation and other work-related transfers, survivors benefits, illness and disability benefits, family benefits, education grants, social aid, housing subsidies, and other public transfers.

Once we have collected the data on these variables, we construct three different rankings of the sample households using their income, earnings, and capital income, respectively, as the ranking criterion. In Tables 13, 14, and 15 we report summaries of the main inequality facts of the corresponding distributions. Note that in Table 14 the poorest group is the bottom 30 percent of the distribution because 30.2 percent of the sample households report zero earnings. Likewise, the poorest group in Table 15 is the bottom 40 percent. We discuss the main inequality facts that arise from these partitions in Sections 4 and 5 below.

4 Earnings, Income, and Capital Income Inequality

The 1998 wave of the Spanish survey of the Europanel unambiguously shows that income, earnings, and capital income are unequally distributed across the households in the sample. The values of the concentration statistics that we have computed are large, and the histograms of the income, earnings, and capital income distributions are skewed to the right; that is, they present very short and fat lower tails and very thin and long upper tails (see Figures 1, 2, and 3).

The concentration statistics that we report in Table 2 below rank income as the most equally distributed of the three variables, and capital income, by far, as the most unequally distributed. In Tables 13, 14, and 15, we report a detailed set of statistics that describe the income, earnings, and capital income partitions. In this section we use some of those statistics to highlight the main income, earnings, and capital income inequality facts.

4.1 Ranges and shapes of the distributions

Figures 1, 2 and 3 contain the histograms of the distributions of, respectively, income, earnings, and capital income and Figure 4 contains the distribution of earnings when we

Figures 1–4: The Spanish Distributions of Income, Earnings and Capital Income
(with levels normalized by dividing by the mean*)

Figure 1: Income

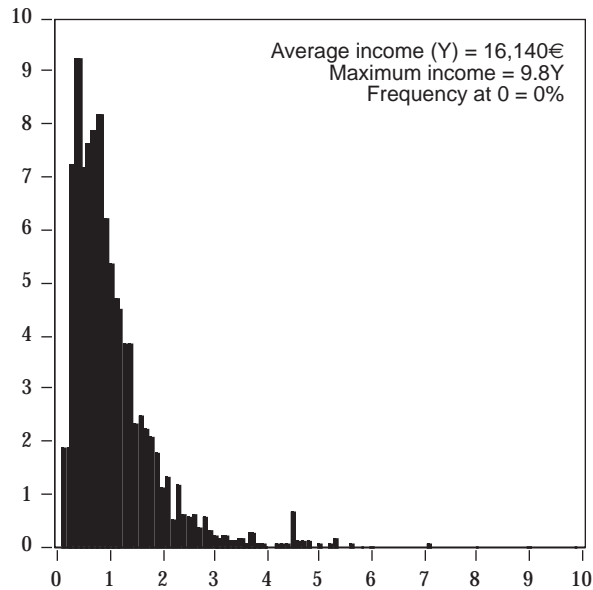


Figure 2: Earnings (all households)

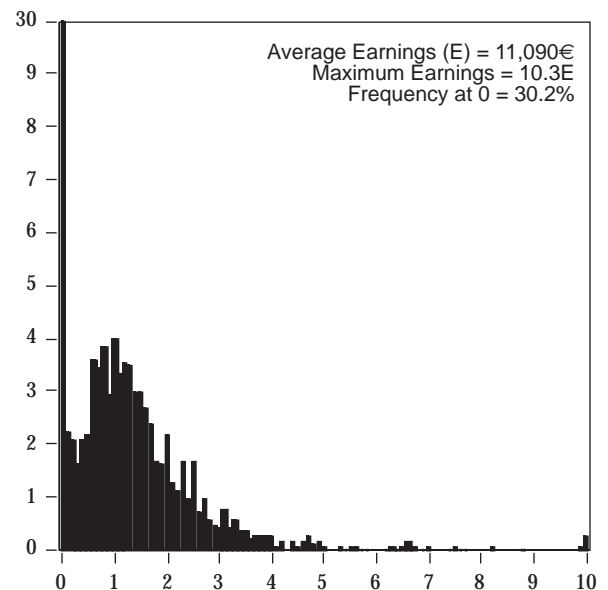


Figure 3: Capital Income

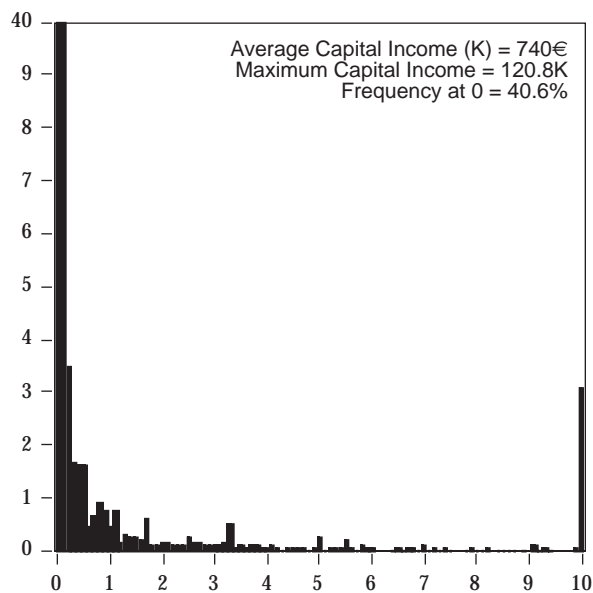
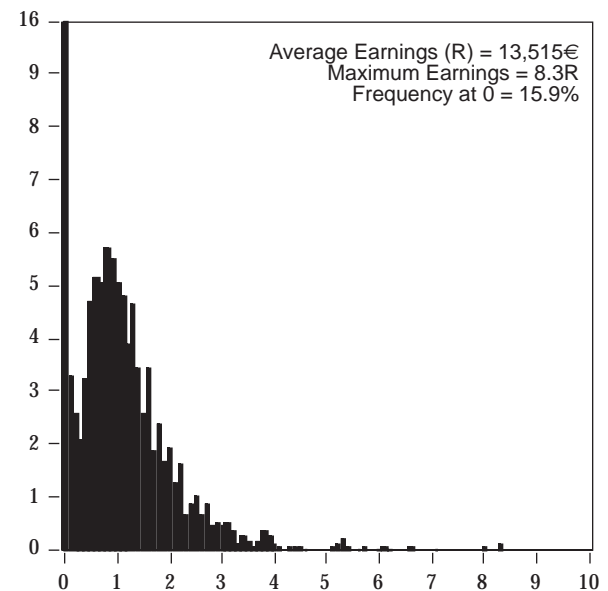


Figure 4: Earnings (excluding retired households)



*The last observations represent the frequencies of households with more than 10 times the corresponding averages

Source: 1998 European Union Household Panel

Table 2: The Concentration of the Income, Earnings, and Capital Income Distributions

	<i>Income</i>	<i>Earnings</i>	<i>Capital Income</i>
Gini index	0.39	0.57	0.95
Coefficient of Variation	0.81	1.13	6.12
Top 1%/Bottom 60%	9.32	21.36	96,848

Source: Spanish Survey of the 1998 European Union Household Panel

exclude the households headed by a retiree from the sample. In these figures, the levels have been normalized by the mean, and the last intervals of the distributions of earnings and capital income represent the frequencies of households with more than 10 times the corresponding averages.

Income ranges from zero to 9.8 times the sample average of 16,140 1997 euros.⁵ Earnings range from zero to 10.3 times the sample average of 11,094 euros and capital income ranges from zero to a startling 120.8 times the sample average of 736 euros. This extremely large normalized range of the capital income distribution is due to the facts that 40.6 percent of the households report zero capital income, that capital income accounts for a small fraction of average income, and that maximum capital income is fairly large. Specifically, while capital income accounts for only 4.6 percent of average income⁶, it accounts for 54.9 percent of maximum income.

As Figures 1, 2, and 3 illustrate, all three distributions are significantly skewed to the right. The top-coding used to draw these figures hides the large dispersion of capital income: while approximately 79 percent of the sample households report less than average capital income (736 euros), three percent of the households report more than ten times that value.

4.2 Concentration

To describe the concentration of income, earnings, and capital income, in Figure 5 we plot the Lorenz curves of these three variables. In Table 2 we report the Gini indexes, the coefficients of variation and the ratios of the shares earned or owned by the top 1 percent and the bottom 60 percent of the distributions of income, earnings, and capital income. We have chosen to report this last statistic because the bottom 60 percent is the poorest group that earns a

⁵The unit of account used in the 1998 Spanish Europanel was 1997 Spanish Pesetas (PTE). We have transformed this units into euros using the entry exchange rate $166.386\text{PTE} = 1 \text{ euro}$. We call this units 1997 euros or, for the sake of brevity, simply, euros.

⁶Earnings and transfers account for 68.7 percent and 26.7 percent of average income, respectively.

strictly positive share of all three variables.

Figure 5: The Lorenz Curves of Income, Earnings, and Capital Income

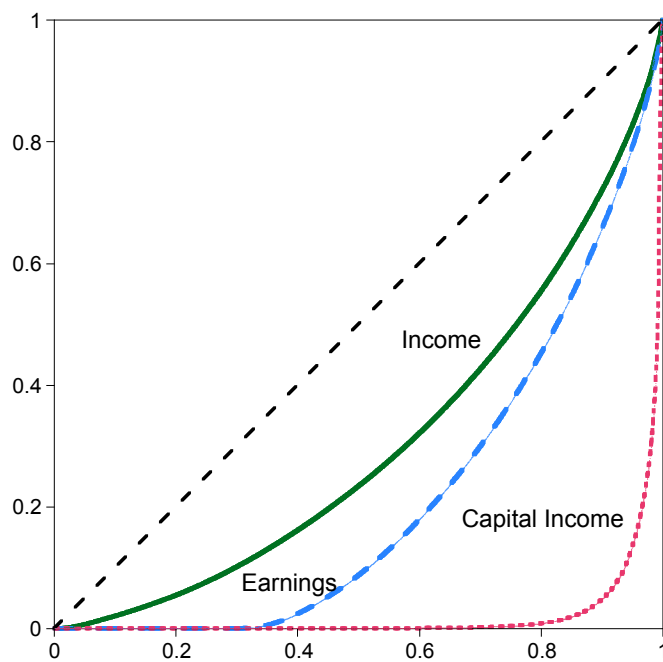


Figure 5 shows that capital income is by far the most unequally distributed of the three variables, since its Lorenz curve lies significantly below the Lorenz curves of both earnings and income in their entire domains. Earnings is more unequally distributed than income for a similar reason. The fact that the Lorenz curves do not intersect simplifies the comparisons. As we discuss below, income is more equally distributed than earnings partly as a result of the equalizing effect of income transfers.

The summary statistics reported in Table 2 also unambiguously show that income is the most equally distributed of the three variables, and that capital income is the most unequally distributed of the three. The extremely large values of the three concentration statistics of the capital income distribution can be justified in part because the Europanel does not impute any rent to owner-occupied houses, and over 70 percent of the sample households report that they own the houses in which they live.

Table 3: The Skewness of the Income, Earnings and Capital Income Distributions

	<i>Income</i>	<i>Earnings</i>	<i>Capital Income</i>
Location of Mean (%)	62	58	91
Mean/Median	1.28	1.30	2,105
Skewness	2.5	2.0	9.9

Source: Spanish Survey of the 1998 European Union Household Panel

4.3 Skewness

We report three measures of the skewness of the income, earnings, and capital income distributions in Table 3. These measures establish that all three distributions are significantly skewed to the right. They also show that capital income is significantly more skewed to the right than either earnings or income.

In the first two rows of Table 3, we report the percentiles in which the means are located and the mean-to-median ratios. In symmetric distributions, the mean is located in the 50th percentile, so that the mean-to-median ratio is one. As the skewness to the right of a variable increases, the location of its mean moves to a higher percentile, and its mean-to-median ratio also increases. According to these two statistics, capital income is by far the most skewed to the right of the three variables, and the skewness of earnings and income are very similar. Specifically, while the locations of the means suggest that income is somewhat more skewed to the right than earnings, the mean to median ratios indicate that the opposite is the case.

Finally, in the last row of Table 3, we report the skewness coefficient proposed by Fisher. This statistic is defined as $\gamma = \sum_i f_i(x_i - \bar{x})^3 / \sigma^3$, where f_i is the relative frequency of realization i , and \bar{x} and σ are the mean and the standard deviation of the distribution, respectively. This coefficient is zero for symmetric unimodal distributions, it is positive for unimodal distributions that are skewed to the right, and it increases as right-hand skewness of the distributions increases. This statistic confirms that all three distributions are significantly skewed to the right, that capital income is, by far, the most skewed, and that income is somewhat more skewed than earnings.

4.4 Correlation

In Table 4 we report the correlation coefficients between income, earnings, capital income, and transfers. The data shows that all four variables are positively correlated, albeit to

Table 4: The Correlation between Income and its Components

	<i>Income</i>	<i>Earnings</i>	<i>Capital Income</i>	<i>Transfers</i>
<i>Income</i>	1.00	0.84	0.44	0.09
<i>Earnings</i>	0.84	1.00	0.10	−0.36
<i>Capital Income</i>	0.44	0.10	1.00	0.00
<i>Transfers</i>	0.09	−0.36	0.00	1.00

Source: Spanish Survey of the 1998 European Union Household Panel

varying degrees. They also show that the correlation between earnings and capital income is low (0.10). This suggests that the capital income owners tend not to work.

The large positive correlation between income and earnings (0.84) is not surprising since earnings account for a the lion share of income (69 percent on average). The significant negative correlation between earnings and transfers (−0.36) can have various interpretations. First, it is further evidence of the large role played by retirement pensions. If we exclude retirement pensions from our measure of transfers, this correlation drops to −0.12. The remaining negative correlation could be evidence that transfers are indeed going to the most needy, or that the many of the transfer recipients choose not to work.

5 The poor and the rich

As we have already mentioned, the common usage of the concepts of the poor and the rich is somewhat ambiguous. To clarify this ambiguity, we distinguish between the poor and the rich in terms of income, earnings, and capital income, and we discuss some of the facts reported in Tables 13, 14 and 15. We organize these facts into two groups: those that pertain to the households in the bottom tails of the distributions, which we refer to generically as the poor, and those that pertain to the households that in the top tails of the distributions, which we refer to generically as the rich. We have chosen this organization criterion because we think that one of the hardest tasks faced by any theory of inequality is to account for both tails of the distributions simultaneously.

5.1 The income-poor

We start with the income-poor. In the first and fourth columns of Table 13 we report some of the economic characteristics of the bottom percentile and the bottom quintile of the income

distribution, respectively. In Table 5 we reorganize these facts for the sake of clarity, and we extend them with those that pertain to the bottom 5 percent of the income distribution, and to the total sample. In Figure 6 we highlight some of these features.

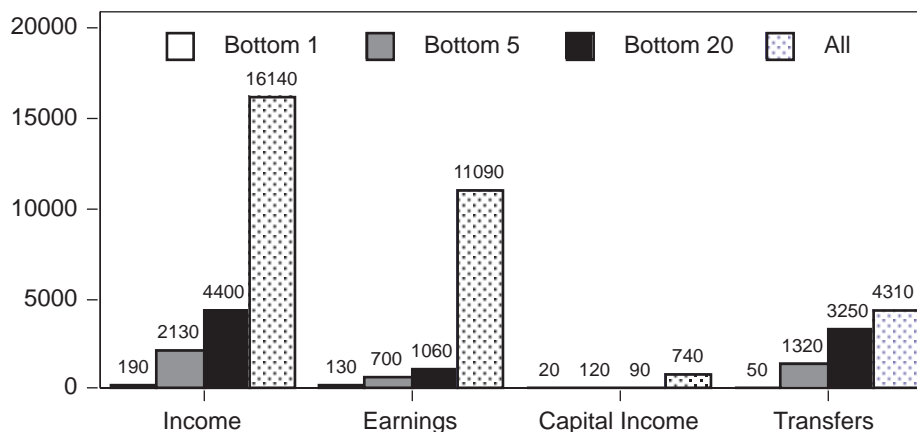
We find that every household in the 1998 Spanish survey of the Europanel reports a strictly positive income. This fact contrasts sharply with the 30.2 percent of the sample households who report zero earnings, and the 40.6 percent of the households who report zero capital income. If we exclude from the sample the households headed by retirees, we find that 15.9 percent of the total sample report a positive income and zero earnings. Naturally, the income of these households is either capital income or transfers. These facts suggest that in Spain a significant number of working-age households has some form of a safety net, either public or private, that allows them to live without working.

We find that the households in the bottom percentile of the income distribution (the income-poorest) are extremely poor, that they are mostly self-employed, middle-aged, reasonably well educated, and either married or single females. Moreover, we find that the Spanish income-poorest receive a surprisingly small share of their income from transfers.

Specifically, the average income of the income-poorest was only 189 euros which is 1.2 percent of the sample average household income, and which corresponds to approximately 40 percent of the \$1 per day poverty line (470 euros).⁷ This number increases by more than 11 times when we move to the bottom 5 percent of the distribution (2,136 euros), and it more than doubles again when we move to the bottom quintile (4,403 euros).

Figure 6: Income, Earnings, Capital Income, and Transfers of the Income Poor (1997€)

Source: 1998 European Union Household Panel



⁷This number was obtained using a 1euros = \$1.20 exchange rate.

Table 5: The Income Poor

Average Income, Earnings, Capital Income and Transfers (euros)				
	Y	E	K	Z
Bottom 1	189	125	18	45
Bottom 5	2,136	695	119	1,322
Bottom 20	4,403	1,064	88	3,251
All	16,140	11,094	736	4,311
Shares of the Sample Totals (%)				
	Y	E	K	Z
Bottom 1	0.0	0.0	0.0	0.0
Bottom 5	0.7	0.3	0.8	1.5
Bottom 20	5.4	1.9	2.4	14.9
Income Sources (%)				
	Labor		Capital	Transfers
Bottom 1	66.4		9.7	24.0
Bottom 5	32.5		5.6	61.9
Bottom 20	24.2		2.0	73.8
All	68.7		4.6	26.7
Age (%)				
	<30	31-45	46-65	65+
Bottom 1	6.0	40.4	42.7	10.8
Bottom 5	18.0	30.9	33.8	17.4
Bottom 20	12.9	18.3	23.3	45.4
All	11.1	35.1	32.7	21.1
Education (%)				
	None	Primary	Highschool	College
Bottom 1	6.9	53.4	28.9	10.7
Bottom 5	20.0	61.7	13.0	5.4
Bottom 20	30.8	56.3	6.9	5.9
All	14.6	51.7	18.9	14.8
Employment Status (%)				
	Worker	Self-employed	Retired	Non-worker
Bottom 1	7.5	69.8	0	22.7
Bottom 5	14.6	31.9	6.6	46.9
Bottom 20	14.6	15.9	29.5	40.1
All	47.5	15.5	18.5	18.5
Marital Status (%)				
	Married		Single Male	Single Female
Bottom 1	65.7		3.0	31.4
Bottom 5	58.7		12.1	29.2
Bottom 20	43.3		14.7	42.0
All	66.8		14.5	18.7

Regarding the shares of income accounted for by transfers, we find that transfers account for only 24 percent of the income of the households in the bottom percentile of the income, while this number jumps to 61.9 and 73.8 percent when we move to the bottom five percent or the bottom quintile, respectively.

Amongst the income-poorest, a striking 69.8 percent of the household-heads report self-employment to be their primary occupation. This number is more than four times larger than the sample average (15.5 percent), and it decreases rapidly as we move to the bottom 5 percent and the bottom quintile of the income distribution (31.9 and 15.9 percent, respectively).

In contrast, amongst the 1998 income-poorest there were no households headed by retirees. In the bottom 5 percent of the income distribution the share of retirees was still only 6.6 percent, while in the bottom quintile this number had jumped to 29.5 percent. These facts suggest that the Spanish pension system makes it possible for the elderly to escape from extreme income poverty.

Perhaps surprisingly, only 6.9 percent of the heads of the income-poorest households have not completed their primary education. This number is significantly smaller than the corresponding ones for both the bottom 5 percent and the bottom quintile of the distribution (20.0 percent and 30.8 percent, respectively). In contrast, large shares of the income-poorest had completed both highschool (28.9 percent) and college (10.7 percent). In the bottom quintile of the distribution, these numbers were 6.9 percent and 5.9 percent respectively.

Many income poor households were headed by single females: around 30 percent of those in the bottom percentile and in the bottom 5 percent, and a startling 42 percent of those in the bottom quintile. These numbers contrast sharply with the 18.7 percent figure that we obtain for the total sample.

Finally, the 1998 Spanish Europanel data show that the income-poorest obtained only 24 percent of their income from transfers, and that this number jumps to 62 percent and 74 percent when we move to the top 5 and the top quintile of the income distribution. This could mean that some of the income-poorest are excluded from social assistance and other non-contributive public transfers.

5.2 The earnings-poor

We find that 30.2 percent of the Spanish Europanel households report zero labor earnings. In spite of this fact, their average income is fairly large (8,730 euros), and it would put these households in the second quintile of the income distribution. This group of households receive the lion's share of total transfers (57.1 percent), and transfers account for almost all (93.9 percent) of this group's income.

As could be expected, the heads of the earnings-poor households tend to be old (67.7 percent are over 65), uneducated (33.5 percent have not completed their primary education), and are either retired or non-workers (58.6 and 35.6 percent, respectively). Many of the households in this group are headed by single women (34.4 percent), and the average household size of this group (2.0 people) is rather small. This is partly because this group of households includes a significant number of widows who live alone. Specifically, 8.7 percent of the sample households were headed by widows and 74.7 of these widows report that they live alone.

5.3 The capital income-poor

We find that 40.6 percent of the Spanish Europanel households report zero capital income. As we have already mentioned, this is partly because the Europanel does not impute any rent to owner-occupied houses and impute any rent to owner-occupied houses, and over 70 percent of the sample households report that they own they houses in which they live.

We also find that in every dimension of inequality this group of households is very close to the sample averages. This is because capital income is extremely concentrated, and because the share of income accounted for by capital income is very small (4.6 percent on average).

5.4 The income-rich

We now turn to the income-rich. In the seventh and ninth columns of Table 13 we report some of the economic characteristics of the top quintile and the top percentile of the income distribution, respectively. In Table 6 we reorganize these facts for the sake of clarity, and we extend them with those that pertain to the the top 5 percent, and to the total sample. In Figure 10 we highlight some of these features.

We find that the households in the top percentile of the income distribution (the income-

Table 6: The Income Rich

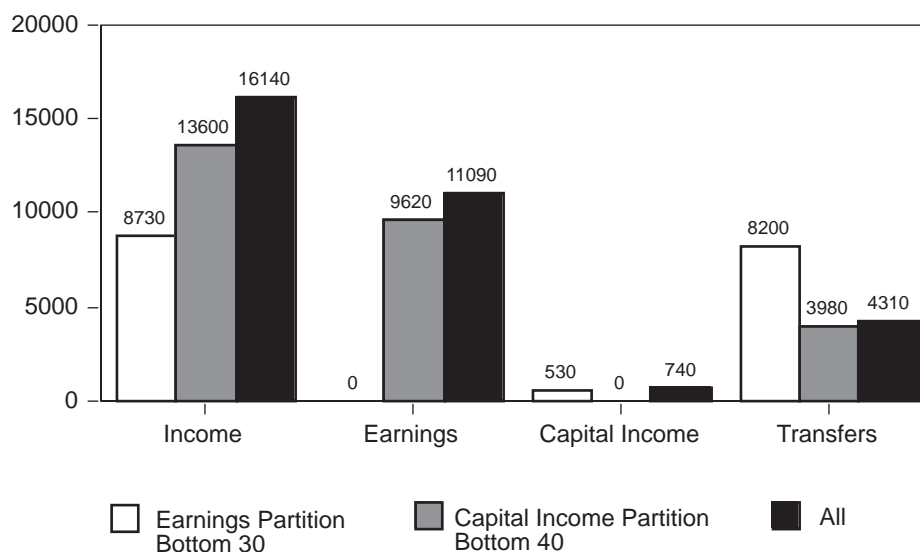
Average Income, Earnings, Capital Income and Transfers (euros)				
	Y	E	K	Z
Top 1	80,349	49,527	27,555	3,267
Top 5	56,344	41,639	8,922	5,784
Top 20	35,969	28,140	2,802	5,027
All	16,140	11,094	736	4,311
Shares of the Sample Totals (%)				
	Y	E	K	Z
Top 1	6.4	5.7	48.1	1.0
Top 5	17.5	18.8	60.7	6.7
Top 20	44.6	50.8	76.2	23.8
Income Sources (%)				
	Labor		Capital	Transfers
Top 1	61.6		34.3	4.2
Top 5	73.9		15.8	10.3
Top 20	78.2		7.8	14.0
All	68.7		4.6	26.7
Age (%)				
	<30	31-45	46-65	65+
Top 1	1.3	9.3	86.1	3.4
Top 5	2.7	32.5	59.4	5.4
Top 20	7.0	42.6	45.3	5.1
All	11.1	35.1	32.7	21.1
Education (%)				
	None	Primary	Highschool	College
Top 1	9.5	5.5	0	85.0
Top 5	0.8	18.6	19.6	61.1
Top 20	2.2	33.0	23.3	41.5
All	14.6	51.7	18.9	14.8
Employment Status (%)				
	Worker	Self-employed	Retired	Non-worker
Top 1	37.8	60.6	1.6	0
Top 5	61.2	33.4	4.1	1.4
Top 20	68.8	17.7	4.8	8.7
All	47.5	15.5	18.5	18.5
Marital Status (%)				
	Married		Single Male	Single Female
Top 1	91.7		3.4	4.9
Top 5	82.4		13.9	3.7
Top 20	76.5		14.2	9.3
All	66.8		14.5	18.7

richest) are income, earnings, and, especially, capital income rich; that they receive almost half of the total sample capital income; that they are mostly self-employed and between 45 and 65 years old; and that almost everyone of them has gone to college and is married.

Specifically, we find that the households in the top income percentile earn on average about five times the sample's average income, and that this number drops to 3.5 and 2.2 times when we consider the households in the top 5 percent and in the top quintile of the income distribution, respectively (see Figure 10).

Figure 7: Income, Earnings, Capital Income, and Transfers of the Earnings and the Capital Income Poor (1997€)

Source: 1998 European Union Household Panel



We also find that capital income is extremely concentrated in the hands of the income-rich. Specifically, the households in the top percentile of the income distribution receive 48.1 percent of the total sample capital income, and this number increases to 60.7 percent and 76.2 percent, when we consider the top 5 percent and the top quintile. These facts notwithstanding, the income-richest receive a share of total transfers (1.0 percent) that is significantly larger than the share received by the bottom percentile (0.01 percent).

As many as 86.1 percent of the income-rich household heads belong to the 46-65 age cohort, while only 1.3 percent are under 30 and 3.4 percent are over 65. The share of the very young and the very old increase sharply as we move towards the top quintile of the distribution.

A very large number household heads in the top 1 percent of the income distribution (85.0 percent) report that they have completed college. This number drops to 61.1 percent and

41.5 percent when we consider the households in the top 5 percent and in the top quintile of the distribution, respectively.

As was the case with the income-poorest, a large majority of the household heads in the top percentile of the income distribution (60.6 percent) report that self-employment is their primary occupation, no-one is a non-worker, and only 1.6 percent are retired. These numbers contrast sharply with the sample averages that are 15.5, 18.5, and 18.5 percent, respectively.

Finally, the income-rich are mostly married, and they tend to live in large households. Specifically, 91.7 percent of the household heads in the top one percent of the income distribution are married, and the average size of these households is a striking 7.3 people, while the sample averages are 66.8 and 3.2 people, respectively. If we consider the top income quintile, these three numbers drop somewhat: 76.5 percent are married, and their average household size is 4.4 people.

5.5 The earnings-rich

Next we consider the earnings-rich. The average earnings of the households in the the top quintile (the earnings-rich) are 2.7 times the sample's average, and the average earnings of those in the top 1 percent of the earnings distribution (the earnings-richest) are 6.4 times the sample's average earnings. We report some of their economic characteristics in Figures 10 and 11, and in the last columns of Table 14.

We find that the shares of income accounted for by capital income and transfers are rather small for these two groups of households. Specifically, capital income accounts for 6.4 percent of the income of the earnings-rich, and transfers account for 4.5 percent. In the case of the earnings-richest these numbers are 2.2 and 2.7 percent, respectively.

We also find that most of the earnings-richest (91.3 percent) are married, perhaps to a spouse who gives them extra incentives to work, and they tend to live in large households. Specifically, the average household size in the top quintile of the earnings distribution is 4.3 people, while that in the bottom thirty percent of the earnings distribution is only 2.0 people. In fact, both the average share of married households and the average household size of the quintiles of the earnings partition are clearly increasing in earnings (see Table 14).

5.6 The capital income-rich

Finally, we consider the capital income-rich. We report some of their economic characteristics in the last columns of Table 15, and in Figures 10 and 11.

Table 15 shows that capital income is extremely concentrated in the hands of very few households. Specifically, the households who belong to the top 1 percent of the capital income distribution (the capital income-richest) earn 57.2 percent of the total sample capital income, and those who belong to the top quintile (the capital income-rich) earn an impressive 99.2 percent. When compared with the rest of the households in the sample, the average capital income of these households is also very large. Specifically, the capital income-rich earn 5 times the sample average, and the capital income-richest earn 57 times the sample average.

These two facts notwithstanding, capital income accounts for a relatively small share of total income, even for the households in the top tail of the capital income distribution (14 percent in the case of the top quintile, and 63 percent in the case of the top percentile).

Another outstanding feature of the capital income partition is that it is mostly the old who are capital income rich. Specifically, the share of households in the top capital income quintile who are older than 46 is 64.2 percent, and the share of the households in the top capital income percentile who belong to that age group is 94.6 percent.

Finally, very large proportions of the capital income-richest are married (93.2 percent), have obtained a college degree (78.7 percent), and are self-employed (71.7 percent).

6 Age and inequality

Some of the income differences across households can be attributed to age.⁸ Two main methods can be used to quantify the relationship between age and inequality. One method is to compare the lifetime inequality statistics with their yearly counterparts. To implement this method, we must follow a sample of households through their entire lifecycles. Unfortunately, the Europanel is not long enough for this purpose, and this forces us to use cross-sectional data to quantify the age-related differences in inequality.

⁸In fact, a large part of the quantitative heterogeneous-agent literature uses models in which differences in people's age are the main source of the inequality of earnings, income, and wealth. See, for example, Auerbach and Kotlikoff (1987), Fullerton and Rogers (1993), and Ríos-Rull (1996).

Figures 8–10: Spanish Households Partitioned by Age

Source: 1998 European Union Household Panel

Figure 8: Averages (1997€)

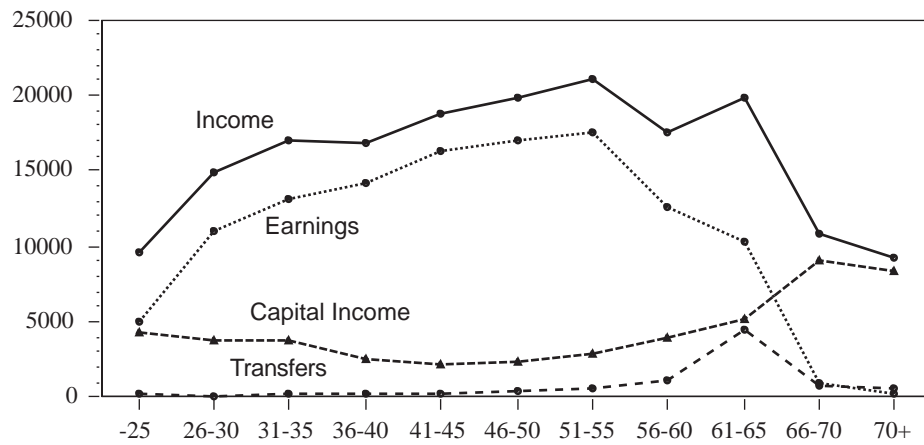


Figure 9: Gini Indexes

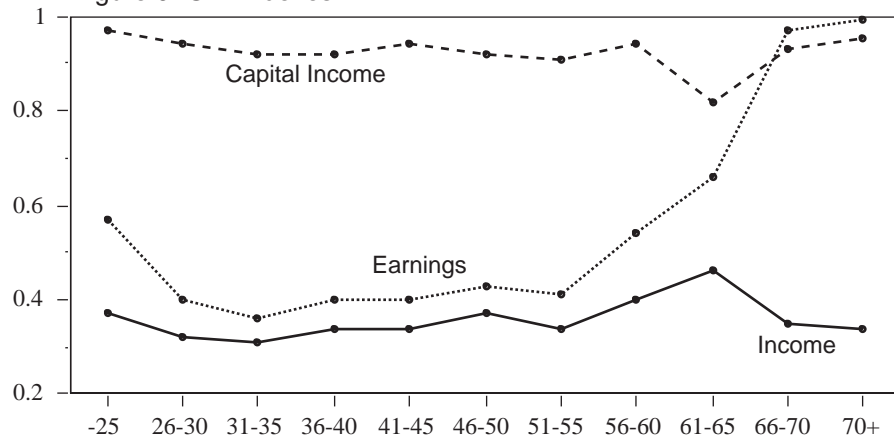
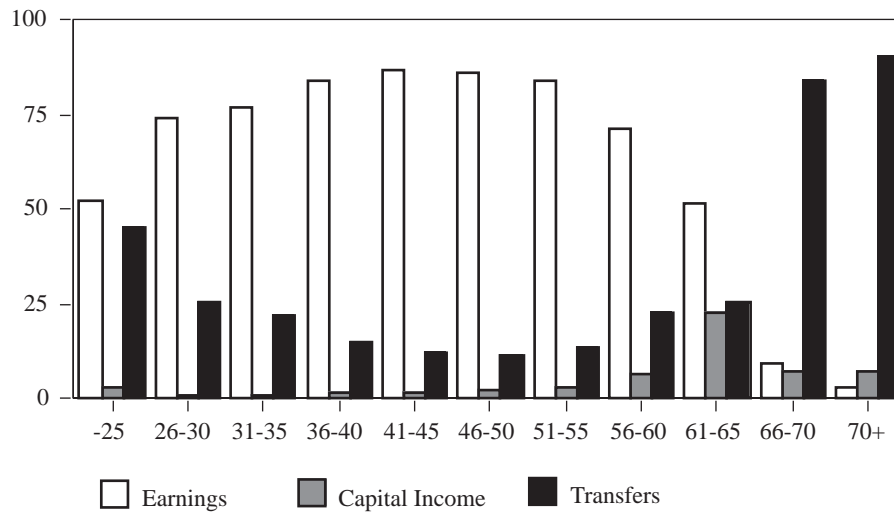


Figure10: Sources of income (%)



Specifically, we do the following: we partition the 1998 Spanish Europanel sample into 11 cohorts according to the age of the household heads, we compute the relevant statistics for each cohort, and we compare them with the corresponding statistics for the entire sample. These statistics are the cohort average income, earnings, capital income, and transfers and their respective Gini indexes; the average shares of income earned by each cohort from various income sources; the number of people per household in each cohort and the relative cohort size. We report these statistics in Table 7.

Table 7: Spanish Households Partitioned by Age

Age	Averages (1997euros)				Gini Indexes			Income Sources (%)			Size ^e	H (%) ^f
	Y ^a	E ^b	K ^c	Z ^d	Y	E	K	E	K	Z		
-25	9,517	4,968	259	4,290	0.37	0.57	0.97	52.2	2.7	45.1	2.6	2.8
26-30	14,938	11,039	148	3,751	0.32	0.40	0.94	73.9	1.0	25.1	3.0	8.3
31-35	16,991	13,107	176	3,709	0.31	0.36	0.92	77.1	1.0	21.8	3.5	12.4
36-40	16,908	14,202	234	2,472	0.34	0.40	0.92	84.0	1.4	14.6	3.5	11.9
41-45	18,795	16,327	272	2,196	0.34	0.40	0.94	87.0	1.4	11.7	3.9	10.8
46-50	19,841	17,055	480	2,305	0.37	0.43	0.92	86.0	2.4	11.6	4.0	10.3
51-55	20,985	17,569	614	2,803	0.34	0.41	0.91	83.7	2.9	13.4	4.0	9.1
56-60	17,523	12,553	1,060	3,909	0.40	0.54	0.94	71.6	6.1	22.3	3.8	6.2
61-65	19,900	10,234	4,548	5,118	0.46	0.66	0.82	51.4	22.9	25.7	3.2	7.1
66-70	10,759	1,003	752	9,004	0.35	0.97	0.93	9.3	7.0	83.7	1.9	5.8
+70	9,184	229	665	8,290	0.34	0.99	0.95	2.5	7.2	90.3	1.7	15.3
Total	16,140	11,094	736	4,311	0.39	0.57	0.95	68.7	4.6	26.7	3.2	100

^aIncome. ^bEarnings. ^cCapital Income. ^dTransfers. ^eAverage number of persons per household. ^fPercentage number of households per age group.

Source: Spanish Survey of the 1998 European Union Household Panel

In Figure 8, we represent the average income, earnings, capital income, and transfers of each cohort. As this figure illustrates, earnings displays the typical hump-shape conventionally attributed to the life-cycle. Perhaps more interestingly, the life-cycle patterns of capital income and transfers differ significantly. More specifically, average cohort capital income is moderately increasing until age 60, it jumps in the 61-65 age cohort when households cash in their retirement plans, and it drops again thereafter. On the other hand, average cohort transfers display a mild U-shape. They are somewhat high in the under-25 age cohorts, they decrease until the 41-45 cohort, and they increase thereafter until they reach the maximum in the 66-70 age group. Altogether, the life-cycle behavior of these variables implies that income also displays the familiar life-cycle hump-shape, with an extra peak in the 61-65 cohort.

In Figure 9, we represent the Gini indexes of income, earnings, and capital income of the

age cohorts. We find that the Gini indexes of income and capital income of the age cohorts are very similar to those of the total sample. On the other hand, the Gini index of earnings displays a strong U-shape. It is 0.57 for the under-25 cohort, it stays around 0.40 until age 55 and it increases sharply thereafter to reach 0.99 in the over-70 age group. This finding is not surprising since the number of households whose earnings are zero increases very significantly around the retirement age and thereafter.

In Figure 10, we represent the income sources of the age cohorts. Their shapes are also very characteristic. The share of income accounted for by earnings is clearly hump-shaped, it peaks at the 41-45 age group, and it drops sharply thereafter. The transfers share of income is clearly U-shaped. It drops from 45.1 percent in the under-25 age cohort to 11.6 percent in the 46-50 group and it increases sharply thereafter to reach 90.3 percent in the over-70 cohort. Finally, the share of income accounted for by capital income is less than three percent until age 55, it jumps to 22.9 percent in the 61-65 age group, and it drops to about seven percent thereafter.

7 Employment Status and Inequality

To document the relationship between employment status and inequality, we partition the Spanish Europanel sample into workers, the self-employed, retirees, and non-workers according to the occupation declared by the heads of the households. In Table 8 we report the average income, earnings, capital income, and transfers; the Gini indexes for income, earnings, and capital income; the shares of income obtained from various sources; the number of people per household; and the relative group sizes for these four employment status groups, and for the entire sample.

In Figure 11, we represent the average income, earnings, capital income, and transfers of the employment status groups. It turns out that the differences across these groups are substantial. Workers make up 47.5 percent of the sample and they are by far the largest group. Their income is 23 percent higher than the sample average, and their earnings are 54 percent higher, but their average capital income and transfers are significantly smaller than the sample average. The self-employed households make up 15.5 percent of the sample, their average income is only 13 percent smaller than that of workers, but their average capital income is 7.7 times larger. The retirees account for 18.5 percent of the sample. Their average income is only 64.9 percent of the sample average, and it is made up mostly of capital income and transfers. Finally, households headed by a non-worker earn only slightly less income than the retirees, but their earnings are larger and their transfers smaller.

Figures 11–13: Spanish Households Partitioned by Employment Status

Source: 1998 European Union Household Panel

Figure 11: Averages (1997€)



Figure 12: Gini Indexes

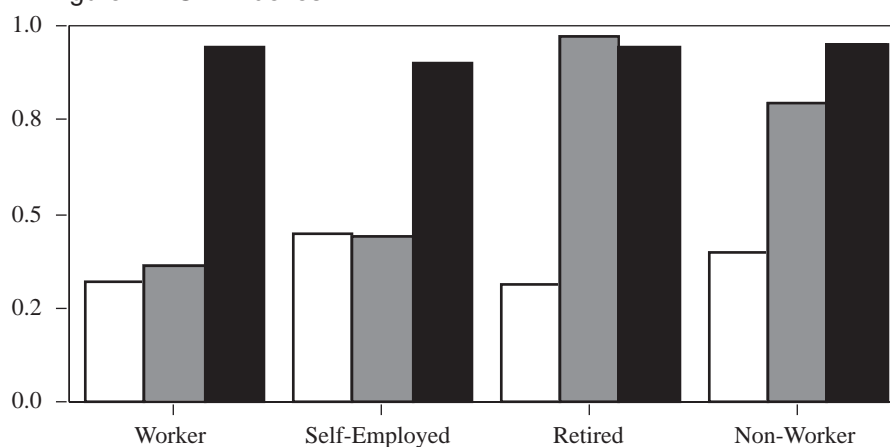


Figure 13: Sources of Income (%)



Income Earnings Capital Income Transfers

Table 8: Spanish Households Partitioned by Employment Status

Age	Averages (1997euros)				Gini Indexes			Income Sources (%)			Size ^e	H (%) ^f
	Y ^a	E ^b	K ^c	Z ^d	Y	E	K	E	K	Z		
<i>Worker</i>	19,793	17,108	317	2,367	0.32	0.36	0.94	86.4	1.6	12.0	3.5	47.5
<i>Self-Employed</i>	18,728	13,472	2,456	2,800	0.45	0.44	0.90	71.9	13.1	15.0	4.2	15.5
<i>Retired</i>	10,473	417	755	9,301	0.31	0.97	0.94	4.0	7.2	88.8	1.9	18.5
<i>Non-Worker</i>	10,259	4,327	354	5,578	0.40	0.79	0.95	42.2	3.4	54.4	2.9	18.5
<i>Total</i>	16,140	11,094	736	4,311	0.39	0.57	0.95	68.7	4.6	26.7	3.2	100

^aIncome. ^bEarnings. ^cCapital Income. ^dTransfers. ^eAverage number of persons per household. ^fPercentage number of households per age group.

Source: Spanish Survey of the 1998 European Union Household Panel

As Figure 12 illustrates, the Gini indexes of income, earnings, and capital income differ significantly across the employment status groups. Income is most equally distributed amongst workers and retirees, and most unequally distributed amongst the self-employed and the non-workers. Not surprisingly, earnings are most unequally distributed amongst the retirees and the non-workers. In contrast, the Gini indexes of capital income are very similar for all the employment status groups.

In Figure 13 we represent the income sources of the employment status groups. We find that the shares of income accounted for by labor, capital, and transfers also differ significantly with the primary occupation of the household heads. The most noteworthy features of this figure are the significant share of capital income obtained by the self-employed (13%), and the fact that labor income, presumably earned by the spouse, accounts for 42 percent of the income of the households headed by a non-worker. It is also remarkable that this group is also the second largest recipient of transfers (54%).

Finally, we find that both the self-employed and the workers tend to belong to households that are larger than average.

8 Education and inequality

To document the relationship between education and inequality, we partition the 1998 Spanish Europanel sample into four main education groups based on the level of education attained by the head of the household. The first group, labeled *No-Primary*, includes the households whose head has not completed the mandatory primary education; the second

group, labeled *Primary*, includes the households whose head has completed the primary education, but has not completed the secondary education; the third group, labeled *Secondary*, includes the households whose head has completed the secondary education, but has not obtained a college degree; and the fourth group, labeled *College*, includes the households whose head has obtained at least a college degree. We further partition the secondary education households into two groups: a group labeled *FP* that includes the households whose head has completed technical highschool, and a group labeled *BUP* that includes the households whose head has completed regular highschool. Finally we partition the college households into two groups: a group labeled *Diplomatura* that includes the households whose head has obtained a three-year college degree, and a group labeled *Licenciatura* that includes the households whose head has obtained a four or five year college degree.

In Table 9, we report the averages for income, earnings, capital income, and transfers; the Gini indexes for income, earnings, and capital income; the shares of income obtained from various sources; the number of people per household; and relative group sizes the for these education groups, and for the entire sample.

Table 9: Spanish Households Partitioned by Education

Age	Averages (1997euros)				Gini Indexes			Income Sources (%)			Size ^e	H (%) ^f
	Y ^a	E ^b	K ^c	Z ^d	Y	E	K	E	K	Z		
<i>No-Primary</i>	8,974	3,186	152	5,636	0.31	0.80	0.95	35.5	1.7	62.8	2.7	14.9
<i>Primary</i>	13,610	9,070	317	4,223	0.35	0.56	0.94	66.6	2.3	31.0	3.3	51.5
<i>Secondary</i>	18,163	13,899	428	3,836	0.31	0.42	0.92	76.5	2.4	21.1	3.2	18.9
<i>College</i>	29,278	22,151	3,174	3,953	0.34	0.41	0.89	75.7	10.8	13.5	3.6	14.7
<i>FP</i>	16,280	12,514	442	3,324	0.29	0.40	0.94	76.9	2.7	20.4	3.1	9.3
<i>BUP</i>	20,009	15,257	415	4,337	0.32	0.43	0.90	76.2	2.1	21.7	3.3	9.5
<i>Diplomatura</i>	22,279	17,174	1,261	3,843	0.30	0.38	0.92	77.1	5.7	17.3	3.2	5.8
<i>Licenciatura</i>	33,824	25,383	4,416	4,024	0.33	0.40	0.84	75.1	13.1	11.9	3.8	8.9
<i>Total</i>	16,140	11,094	736	4,311	0.39	0.57	0.95	68.7	4.6	26.7	3.2	100

^aIncome. ^bEarnings. ^cCapital Income. ^dTransfers. ^eAverage number of persons per household. ^fPercentage number of households per age group.

Source: Spanish Survey of the 1998 European Union Household Panel

It turns out that primary education households are the most numerous, they make up 51.5 percent of the Spanish Europanel sample; secondary education households come next with 18.9 percent; and both the no-primary and the college groups come next with approximately 15 percent of the sample each. The average income, earnings, capital income, and transfers of the education groups, are depicted in Figure 14. This figure unambiguously shows that there is a close association between education level and the economic performance of

Figures 14–16: Spanish Households Partitioned by Education

Source: 1998 European Union Household Panel

Figure 14: Averages (1997€)

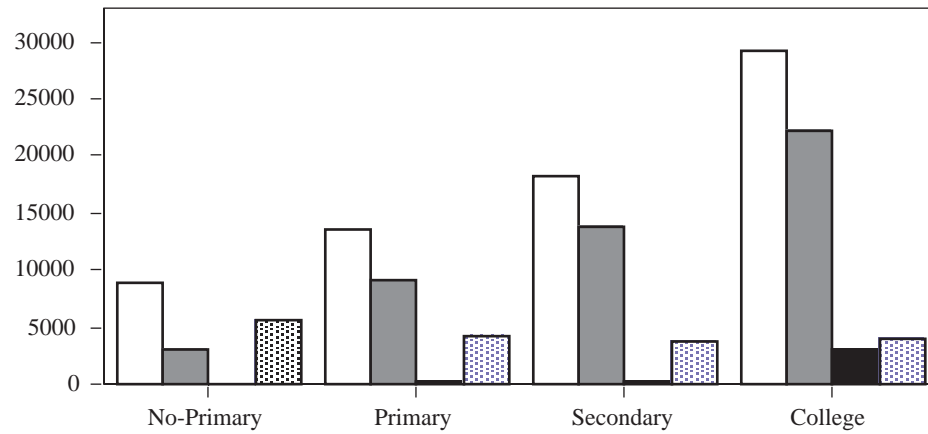


Figure 15: Gini Indexes

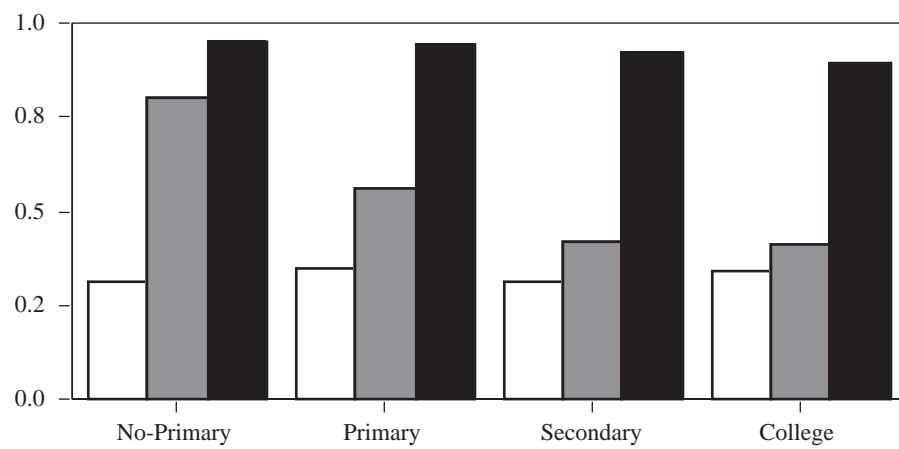
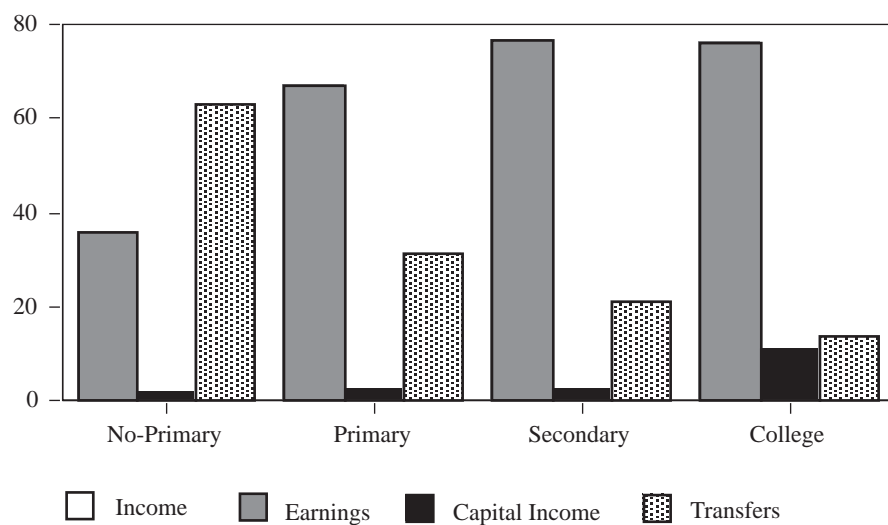


Figure 16: Sources of Income (%)



Income Earnings Capital Income Transfers

households. Specifically, the average income of college and secondary and primary education households are, respectively, 3.3, 2.0, and 1.5 times larger than the income of no-primary education households. Both earnings and capital income display a similar pattern, and the only exception is transfers. No-primary education households are the largest recipients of transfers followed by households who have only completed their primary education.

As Figure 15 illustrates, the concentrations of income and capital income are similar across education levels. This is not the case with earnings, which are most unequally distributed amongst the no-primary education households.

In Figure 16, we represent the income sources of the education groups. With the exception of the no-primary education group, that obtains 62.8 percent of its income from transfers, the remaining three education groups obtain most of their income from labor sources. We also find that college households obtain a significant share of their income from capital sources (10.8 percent), and that the shares of income accounted for by transfers are clearly decreasing in the education groups. Finally, we find that the average household size is largest for college households (3.6 people), and that it is smallest for no-primary education households (2.7 people). However, the differences in household size across the three education groups are relatively small.

9 Marital Status and Inequality

To document the relationship between marital status and inequality, we partition the 1998 Spanish Europanel sample into married households and single households with and without dependents according to the marital status of the heads of the households. We also subdivide these last two groups according to the sex of the household heads. We refer to these groups as the *marital status partition*. In Table 10 we report the averages for income, earnings, capital income, and transfers; the Gini indexes for income, earnings, and capital income; the shares of income obtained from various sources; the number of people per household; and the relative group sizes for these marital status groups, and for the entire sample. In Figure 17, we represent the average income, earnings, capital income, and transfers of the marital groups. In Figure 18, we represent the Gini indexes of income, earnings, and capital income, and in Figure 19, we represent the income sources of the marital status groups.

First we compare married and single households. Married households make are the largest group (66.8 percent of the sample), single households without dependents come next (29.6 percent), and the number of single households with dependents is very small (3.6 percent of

the sample). We find that married households make substantially higher income, earnings, and capital income than their single counterparts. However, this is not the case if we divide the income of married households by two to account for double-income households. When we compare singles with and without dependents, we find that singles with dependents are somewhat better off than singles without dependents, but that the former obtain a significantly larger share of their income from labor, while the latter receive a larger amount of transfers. Specifically, the average income of singles with dependents is 10.5 percent larger than that of singles without dependents, their average earnings are 68.2 percent larger, and their average transfers are 44.4 percent smaller. The significant number of widows in the sample (8.3 percent) justifies in part these results.

We also find that earnings are most unequally distributed amongst single households without dependents. In contrast, the concentrations of both income and capital income are fairly similar across the three main marital status groups.

Finally, as far as the sources of income are concerned, we find that the share of income accounted for by earnings is very similar for married households and for those headed by singles with dependents. On the other hand, this share is significantly smaller for households headed by singles without dependents. The opposite happens in the case of transfers. Specifically, we find that transfers account for 47.9 percent of the income of singles without dependents, and only for 24.1 percent of the income of singles with dependents. This is not surprising since retired widows are mostly singles without dependents, in general they do not work, and they receive a significant share of retirement pensions and other social security transfers.

Table 10: Spanish Households Partitioned by Marital Status

Age	Averages (1997euros)				Gini Indexes			Income Sources (%)			Size ^e	H (%) ^f
	E ^a	I ^b	K ^c	Z ^d	E	I	K	E	K	Z		
<i>Married</i>	17,587	13,174	921	3,491	0.38	0.52	0.95	74.9	5.2	19.9	3.6	66.8
<i>Singles w/o</i>	13,078	6,430	388	6,260	0.40	0.67	0.93	49.2	2.9	47.9	2.1	29.6
<i>singles w</i>	14,459	10,816	165	3,478	0.32	0.46	0.98	74.8	1.1	24.1	4.8	3.6
<i>Single males w/o</i>	15,828	8,456	470	6,902	0.36	0.57	0.91	53.4	2.9	43.6	2.5	12.6
<i>Single females w/o</i>	11,050	4,935	327	5,787	0.41	0.74	0.93	44.7	3.0	52.4	1.8	17.0
<i>Single males w</i>	17,060	14,273	52	2,734	0.22	0.29	0.96	83.7	0.0	16.0	5.8	1.9
<i>Single females w</i>	11,468	6,840	295	4,333	0.37	0.60	0.97	59.6	2.6	37.8	3.5	1.7
<i>Total</i>	16,140	11,094	736	4,311	0.39	0.57	0.95	68.7	4.6	26.7	3.2	100

^aIncome. ^bEarnings. ^cCapital Income. ^dTransfers. ^eAverage number of persons per household. ^fPercentage number of households per age group.

Source: Spanish Survey of the 1998 European Union Household Panel

Figures 17–19: Spanish Households Partitioned by Marital Status

Source: 1998 European Union Household Panel

Figure 17: Averages (1997€)

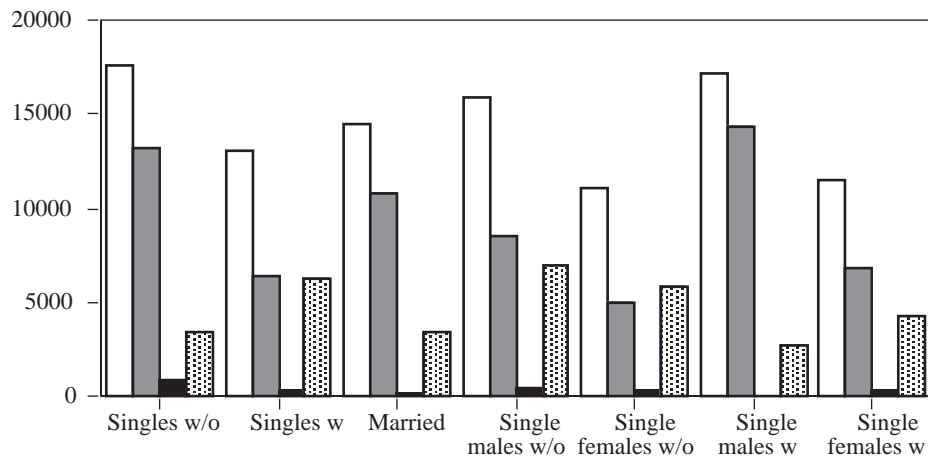


Figure 18: Gini Indexes

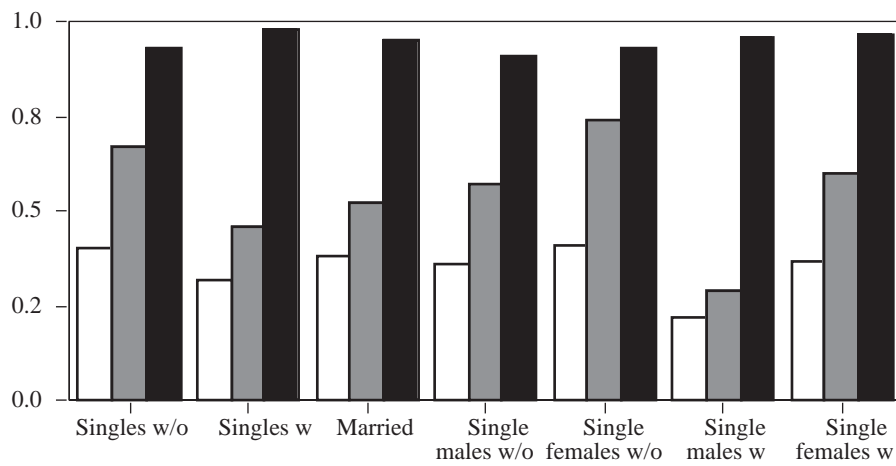
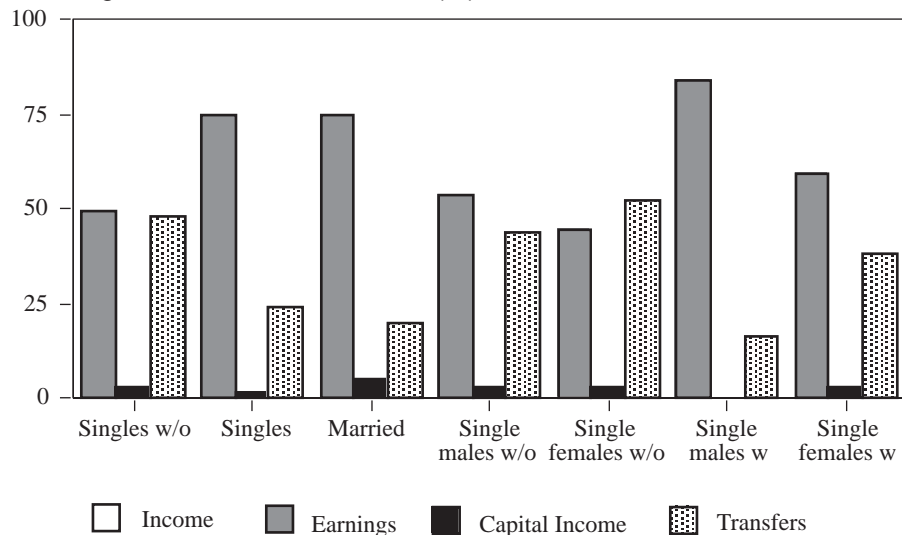


Figure 19: Sources of Income (%)



Next we consider the partition of single households according to the sex of the household heads. No surprisingly, in the 1998 Spanish Europanel sample, the households headed by single females outnumber those headed by single males. Specifically, their sample shares are 18.7 percent and 14.5 percent, respectively. This difference is consistent with the fact that females live longer than males.

We find that, on average, single females both with and without dependents are significantly worse off than their male counterparts. Specifically, the average income earned by households headed by single males without dependents is 43.3 percent larger than that earned by their female counterparts, and the average income earned by males with dependents is 48.8 percent larger. Only as transfer recipients single females with dependents fare better off than their male counterparts (their average transfers are 58 percent larger).

As far as the economic inequality amongst single households with dependents is concerned, we find that all three variables are more unequally distributed amongst households headed by females than amongst those headed by males (see Figure 18).

Finally, as Figure 19 illustrates, households headed by single females, both with and without dependents, earn smaller shares of their income from earnings and larger shares from transfers than the corresponding groups headed by single males.

10 Income mobility

People move up and down the economic scale; they do not stay in the same income groups forever. Aging is perhaps the main cause for this type of economic mobility, but it is certainly not the only one. Mobility is also affected by the results of business projects and other ventures that can bring about significant changes in earnings to lucky or unlucky entrepreneurs. There can also be some other radical expressions of good luck (such as gambling), or bad luck (such as accidents). Furthermore, other changes in economic groups are a consequence of the conscious effort of households to smooth their consumption over time. Whatever its cause, economic mobility makes inequality an essentially dynamic phenomenon.

To construct our mobility measures, we use data from the 1994 and 1998 waves of the Europanel. We use these data to construct Table 11 where we report the transition matrices for the 1994 income quintiles. For example, the entry in the first row and the first column of Table 11 reports that 61.3 percent of the households in the bottom income quintile in 1994 were also in the bottom income quintile in 1998.

Table 11: Income Mobility of Spanish Households (1994–1998)

<i>From 1994</i>	<i>To 1998</i>				
	<i>0-20</i>	<i>20-40</i>	<i>40-60</i>	<i>60-80</i>	<i>80-100</i>
<i>0-20</i>	61.3	20.9	8.1	7.0	2.7
<i>20-40</i>	17.7	44.0	23.7	11.0	3.6
<i>40-60</i>	9.9	19.4	40.4	24.1	6.2
<i>60-80</i>	6.4	9.6	22.2	41.4	20.4
<i>80-100</i>	2.9	6.3	8.1	23.4	59.3

Source: Spanish Survey of the 1998 European Union Household Panel

To summarize this mobility information, in Table 12 we report the fractions of the households of the quintiles of the income distribution that have moved to a different quintile during the four years lapsed between 1994 and 1998. We call these fractions the mobility statistics.⁹ In Figure 20 we represent these mobility statistics for the income quintiles.

For some purposes, the mobility statistics reported in the last five columns of Table 12 might still contain too much information, and it might be useful to have a simpler, one-dimensional summary statistic for each variable. One such statistic is a simple arithmetic transformation of the second-highest eigenvalue of the mobility matrix.¹⁰ The closer this eigenvalue is to 1, the more persistent is the variable under study. Consequently, the closer one minus the second-highest eigenvalue is to 1, the more mobile is the variable under study. We report this statistic in the first column of Table 12.

In the first row of Table 12 we report the summary mobility statistics for all the sample households. To evaluate the roles played by age and employment status in shaping economic mobility, in the second row of that same table we report the summary mobility statistics for the sample households whose head had not retired in 1998, and in the third row those for the sample households whose head was between 25 and 45 years old in 1994.

As Figure 24 illustrates, we find that in all three cases the income mobility statistics are clearly hump-shaped. In general, the bottom and the top quintiles should be the least mobile, since the households in those quintiles can only move either up or down the economic scale, while the households in the middle quintiles can move both up and down. In the 1994-1998 period this was indeed the case and the households in the three middle quintiles are clearly the most mobile.

⁹Note that the shares reported in the each of the rows of Table 12 are one minus the shares reported in the diagonals of the panels of Table 11.

¹⁰Note that the highest eigenvalue of probability transition matrices is always 1.

Table 12: Summary Income Mobility Statistics for Spanish Households

	ρ^a	1st Q	2nd Q	3rd Q	4th Q	5th Q ^b
All	0.357	38.7	56.0	59.6	58.6	40.7
Non-Retired ^c	0.385	45.5	62.5	61.7	59.9	38.9
Age 25–45 ^d	0.322	29.6	50.9	59.0	59.6	39.5

^aThis column reports one minus the second highest eigenvalues of the corresponding mobility matrices.

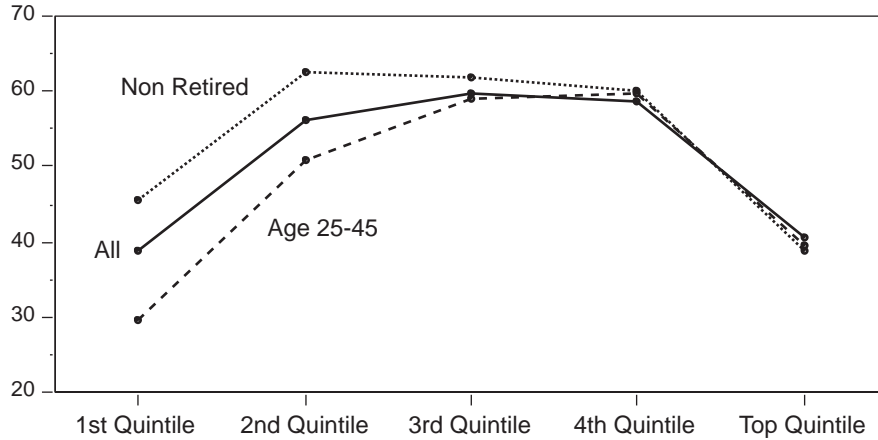
^bThe last five columns of this table report the fractions of the households of each quintile that have moved to a different quintile between 1994 and 1998.

^cThis row reports the mobility statistics of earnings for households whose head had not retired in 1998.

^dThis row reports the mobility statistics of earnings for households whose heads were between 25 and 45 years old in 1994.

Source: Spanish Survey of the 1998 European Union Household Panel

Figure 20: The Mobility of the Income Quintiles (1994-1998)



Source: The European Union Household Panel

If we consider the second-highest eigen values of the mobility matrices, we find that retired households are less mobile than average, and that the households in the 25-45 age cohort are the least mobile. This is because these households were relatively young in 1994 and four years is not long enough for people to experience large changes in their economic status.

11 Concluding comments

Years ago Finn Kydland and Edward C. Prescott argued that “the reporting of facts — without assuming that the data are generated by some probability model— is an important

scientific activity” and that economics should not be an exception.¹¹ This article is an detailed report on some of the inequality facts of the Spanish economy. These facts confirm that inequality is a complex and multidimensional subject, and that most of these dimensions can be described using several statistics. Recent theoretical work (see for instance Krusell and Smith (1998), De Nardi (1999), and Castañeda, Díaz-Giménez and Ríos-Rull (2003) has been successful in accounting for a small subset of the statistics for the U.S. economy. We think that it is high time that similar work was done for the European economies, and more specifically, for Spain. This article is a first step in that direction.

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¹¹See Kydland and Prescott (1990), page 3.

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Table 13: Spanish Households Ranked by Income

	<i>The Poor</i>			<i>Quintiles</i>					<i>The Rich</i>			<i>All</i>
	1	1-5	5-10	1st	2nd	3rd	4th	5th	10-5	5-1	1	
<i>Minimum and Maximum Income ($\times 10^3$ euros)</i>												
Min Income	0.00	0.53	3.93	0.00	6.40	10.70	15.35	22.99	30.33	39.11	72.37	0.00
Max Income	0.49	3.91	4.71	6.40	10.70	15.35	22.99	158.69	39.08	71.62	158.69	158.69
<i>Average Income, Earnings, Capital Income and Transfers ($\times 10^3$ euros)</i>												
Avg Income	0.19	2.62	4.47	4.40	8.61	12.84	18.83	35.97	34.37	48.04	80.35	16.14
Avg Earnings	0.13	0.84	0.50	1.06	3.83	8.17	14.21	28.14	28.78	38.91	49.53	11.09
Avg Cap Inc	0.02	0.14	0.12	0.09	.14	.30	.35	2.80	1.03	2.47	27.56	0.74
Avg Transfers	0.05	1.64	3.85	3.25	4.64	4.37	4.27	5.03	4.56	6.66	3.27	4.31
<i>Shares of the Sample Totals (%)</i>												
Income	0.0	0.6	1.4	5.4	10.7	15.9	23.3	44.6	10.7	11.1	6.4	100
Earnings	0.0	0.3	0.2	1.9	7.0	14.8	25.6	50.8	12.9	13.0	5.7	100
Cap. Inc.	0.0	0.8	0.8	2.4	3.8	8.1	9.4	76.2	7.0	12.5	48.1	100
Transfers	0.0	1.5	4.4	14.9	21.2	20.2	20.0	23.8	5.7	5.8	1.0	100
<i>Income Sources (%)</i>												
Labor	66.4	31.9	11.1	24.2	44.8	63.5	75.1	78.2	83.7	81.0	61.6	68.7
Capital	9.7	5.5	2.6	2.0	1.6	2.3	1.8	7.8	3.0	5.2	34.3	4.6
Transfers	24.0	62.6	86.3	73.8	53.9	34.2	22.7	14.0	13.3	13.9	4.2	26.7
<i>Age (%)</i>												
≤ 30	6.0	20.9	5.0	12.9	11.0	10.9	13.6	7.0	3.6	3.2	1.3	11.1
31-45	40.4	28.5	9.3	18.3	31.1	40.6	42.9	42.6	45.3	40.5	9.3	35.1
46-65	42.7	31.6	20.5	23.3	26.3	31.4	37.2	45.3	47.6	50.2	86.1	32.7
65+	10.8	19.0	65.3	45.4	31.6	17.1	6.3	5.1	3.5	6.1	3.4	21.1
Avg Age	48.0	48.4	66.2	57.7	53.0	47.9	44.4	46.4	47.0	47.4	57.4	49.9
<i>Education (%)</i>												
None	6.9	23.1	40.4	30.8	23.4	8.8	7.4	2.2	1.5	1.1	9.5	14.6
Primary	53.4	63.7	54.5	56.3	57.8	62.6	48.7	33.0	34.1	21.6	5.5	51.7
High school	28.9	9.1	3.5	6.9	15.5	21.8	27.1	23.3	22.6	24.3	0	18.9
College	10.7	4.1	1.6	5.9	3.2	6.8	16.7	41.5	41.8	53.1	85.0	14.8
<i>Employment Status (%)</i>												
Worker	7.5	16.4	6.7	14.6	34.7	52.8	66.8	68.8	71.5	69.2	37.8	47.5
Self-employed	69.8	22.4	9.0	15.9	11.7	14.9	17.2	17.7	12.3	24.0	60.6	15.5
Retired	0	8.3	23.9	29.5	32.2	18.7	7.3	4.8	3.1	4.9	1.6	18.5
Non-worker	22.7	52.9	60.5	40.1	21.4	13.7	8.7	8.7	13.1	1.8	0	18.5
<i>Marital Status (%)</i>												
Married	65.7	57.0	17.9	43.3	70.7	73.4	70.1	76.5	73.3	79.1	91.7	66.8
Single male	3.0	14.4	13.9	14.7	11.7	14.8	17.1	14.2	14.1	17.6	3.4	14.5
Single female	31.4	28.6	68.2	42.0	17.6	11.9	12.8	9.3	12.6	3.3	4.9	18.7
<i>Household Size</i>												
Avg Size	2.9	2.6	1.7	2.2	2.8	3.1	3.5	4.4	4.2	4.4	7.3	3.2

Source: Spanish Survey of the 1998 European Union Household Panel

Table 14: Spanish Households Ranked by Earnings

	<i>The Poor</i>		<i>Quintiles</i>			<i>The Rich</i>			<i>All</i>
	0-30	30-40	40-60	60-80	80-100	10-5	5-1	1	
<i>Minimum and Maximum Earnings ($\times 10^3$ euros)</i>									
Min Earnings	0	0.11	5.44	11.78	19.21	26.89	33.75	52.51	0
Max Earnings	0.11	5.43	11.78	19.20	113.77	33.69	52.07	113.77	113.77
<i>Average Income, Earnings, Capital Income and Transfers ($\times 10^3$ euros)</i>									
Avg Income	8.73	7.27	12.06	17.86	34.01	31.59	42.98	73.99	16.14
Avg Earnings	0.00	2.75	8.62	15.12	30.30	29.4	40.16	70.35	11.09
Avg Cap Inc	0.53	0.26	0.25	0.32	2.18	1.30	1.27	1.64	0.74
Avg Transfers	8.20	4.26	3.18	2.41	1.52	0.88	1.55	2.00	4.31
<i>Shares of the Sample Totals (%)</i>									
Income	16.2	4.5	14.9	22.1	42.1	9.6	10.8	4.8	100
Earnings	0	2.5	15.6	27.3	54.8	13.0	14.7	6.6	100
Cap. Inc.	1.4	.2	.5	.6	3.9	8.6	7.0	2.3	100
Transfers	57.1	9.9	14.8	11.2	7.0	1.0	1.5	.5	100
<i>Income sources (%)</i>									
Labor	0	37.8	71.6	84.7	89.2	93.1	93.5	95.1	68.7
Capital	6.1	3.6	2.1	1.8	6.4	4.1	2.9	2.2	4.6
Transfers	93.9	58.6	26.4	13.5	4.5	2.8	3.6	2.7	26.7
<i>Age (%)</i>									
≤ 30	4.4	25.4	17.6	12.4	6.0	6.3	2.8	1.6	11.1
31-45	6.9	38.5	51.1	49.1	45.9	49.5	37.2	28.3	35.1
46-65	21.0	32.2	30.5	38.0	47.5	43.4	59.0	66.3	32.7
65+	67.7	3.9	0.9	0.5	0.6	0.8	1.0	3.9	21.1
Avg Age	66.8	41.1	40.8	42.4	45.3	44.8	48.1	49.6	49.9
<i>Education (%)</i>									
No-Primary	33.5	12.4	7.9	6.2	2.1	2.2	1.0	10.3	14.6
Primary	53.1	63.6	59.0	52.8	35.3	32.6	23.6	17.2	51.7
Secondary	8.2	14.8	25.1	27.7	22.3	21.6	23.0	0	18.9
College	5.3	9.2	8.0	13.3	40.2	43.6	52.4	72.4	14.8
<i>Employment Status (%)</i>									
Worker	2.9	36.7	68.4	70.2	76.4	81.9	76.3	80.8	47.5
Self-employed	3.0	26.4	20.3	22.9	16.5	9.9	15.7	18.0	15.5
Retired	58.6	4.1	1.5	0.7	0.4	0	0.5	0	18.5
Non-worker	35.6	32.8	9.9	6.3	6.7	8.2	7.5	1.3	18.5
<i>Marital Status (%)</i>									
Married	51.5	60.5	66.1	75.8	84.7	83.2	89.9	91.3	66.8
Single male	14.1	18.8	17.3	15.6	9.1	11.9	6.7	2.6	14.5
Single female	34.4	20.7	16.7	8.7	6.3	4.9	3.3	6.1	18.7
<i>Household Size</i>									
Avg Size	2.0	3.3	3.4	3.6	4.3	4.5	4.0	4.6	3.2

Source: Spanish Survey of the 1998 European Union Household Panel

Table 15: Spanish Households Ranked by Capital Income

	<i>The Poor</i>	<i>Quintiles</i>			<i>The Rich</i>			<i>All</i>
	0-40	40-60	60-80	80-100	10-5	5-1	1	
<i>Minimum and Maximum Income ($\times 10^3$ euros)</i>								
Min Capital Inc	0	0	0.01	0.09	0.62	2.37	19.56	0
Max Capital Inc	0	0.01	0.09	87.15	2.36	18.03	87.15	87.15
<i>Average Income, Earnings, Capital Income and Transfers ($\times 10^3$ euros)</i>								
Avg Income	13.60	13.90	15.18	24.42	23.35	25.35	66.11	16.14
Avg Earnings	9.62	10.22	10.67	15.33	16.41	14.76	21.05	11.09
Avg Capital Inc	0	0.00	0.03	3.65	1.25	5.42	41.68	0.74
Avg Transfers	3.98	3.68	4.48	5.43	5.70	5.17	3.37	4.31
<i>Shares of the Sample Totals (%)</i>								
Income	33.7	17.2	18.8	30.3	7.2	6.3	4.1	100
Earnings	34.6	18.5	19.3	27.7	7.3	5.4	1.9	100
Cap. Inc.	0	0.0	0.8	99.2	8.5	29.7	57.2	100
Transfers	37.1	16.9	20.8	25.2	6.6	4.9	0.8	100
<i>Income Sources (%)</i>								
Labor	70.6	73.8	70.2	62.8	70.2	58.2	31.9	68.7
Capital	0	0.0	0.2	14.9	5.4	21.4	63.1	4.6
Transfers	29.4	26.2	29.7	22.2	24.4	20.4	5.1	26.7
<i>Age (%)</i>								
<=30	11.9	15.4	9.3	6.8	7.2	3.5	3.1	11.1
31-45	35.2	35.5	40.9	29.0	28.0	24.0	1.5	35.1
46-65	29.9	29.7	31.5	42.5	44.9	46.6	78.5	32.7
65+	22.9	19.4	18.4	21.7	19.9	25.9	16.8	21.1
Avg Age	50.0	48.1	48.8	52.5	51.7	55.0	62.0	49.9
<i>Education (%)</i>								
No-Primary	18.6	14.0	13.0	8.6	3.8	7.5	17.3	14.6
Primary	53.1	54.7	54.1	43.3	47.3	37.9	4.0	51.7
Secondary	17.6	18.9	20.2	20.4	19.1	22.8	0	18.9
College	10.6	12.3	12.7	27.8	29.7	31.8	78.7	14.8
<i>Employment Status (%)</i>								
Worker	48.2	48.3	48.6	44.4	49.9	37.0	9.4	47.5
Self-employed	12.1	15.3	17.2	20.6	15.9	22.8	71.7	15.5
Retired	19.1	17.0	15.8	21.5	21.0	23.8	16.5	18.5
Non-worker	20.7	19.3	18.4	13.5	13.2	16.3	2.4	18.5
<i>Marital Status (%)</i>								
Married	65.3	66.9	68.4	68.0	68.7	69.4	93.2	66.8
Single male	13.9	14.2	14.1	16.3	14.1	14.0	4.4	14.5
Single female	20.8	18.8	17.5	15.7	17.3	16.6	2.4	18.7
<i>Household Size</i>								
Avg Size	3.1	3.1	3.3	3.4	3.1	3.0	7.3	3.2

Source: Spanish Survey of the 1998 European Union Household Panel

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