

WEALTH INEQUALITY AND HOUSEHOLD STRUCTURE: A COMPARISON BETWEEN SPAIN
AND THE UNITED STATES

Wealth inequality and household structure: a comparison between Spain and the United States

The author of this article is Olympia Bover of the Directorate General Economics, Statistics and Research.¹

Introduction

There are considerable differences between the wealth distributions of the developed countries. For example, the proportion of total wealth in the hands of the richest 1% of households, a frequently cited indicator, ranges internationally from 15% to 35%. Studying the nature of these cross-country differences may help determine the effects on wealth of various institutions, such as business regulation, welfare programmes and taxation. Moreover, it is obviously of interest for the measurement of inequality.

Nowadays, the growing availability in various countries of quality data drawn from household surveys means that such comparisons are feasible.² However, in the international studies available hitherto, households have usually been treated as if they were homogeneous across countries (except when studies have tried to use some equivalence-scale measure based on the number of persons in the household). This practice may be appropriate when comparing countries with relatively similar demographic structures, but in most cases the distribution of wealth is influenced by demographic factors. For example, if patterns of household formation by young persons differ in two countries, not only will the distribution of households by age differ, but so will the distribution by household size and marital status. This raises the question up to what point cross-country differences in wealth distributions also apply to comparable households and up to what point they are due to cross-country differences in household structure.³

Some recent studies have, in turn, considered the influence of wealth on the household structure, through marriage and divorce decisions. However, this study stresses aspects of household structure that are assumed to be associated with social values and norms. For example, the age at which young people abandon the parental home to establish their own is a key reflection of deep-rooted differences in household systems across western countries, but it is not the only one. Others are the prevalence of lone parent households and elderly persons living with their children. In this respect, the sociological literature [see Reher (1998)] identifies two clearly distinct geographical areas, one in which family ties are strong (mainly Mediterranean countries) and the other in which such ties are weak (northern Europe and the United States). In the former, children tend to leave home when they start to live as a couple and save until then, while in the latter they establish themselves independently when they reach maturity. These differences are long-standing; the earliest available data show that they date back to at least the seventeenth century. In fact, according to the first censuses, in the mid-nineteenth century in northern Europe 30-55% of young people aged 15-24 (of both sexes) left the parental home to serve in another household, while only 5-20% did so in southern Europe. In recent years there has been some convergence, but a clear division remains.

This article compares the wealth distribution of Spain, a country with strong family ties, with that of the United States, where family ties are weaker. As can be seen in Table 1, the differences between these two countries, as regards summary statistics of wealth distributions, are

1. This article is a summary of Working Paper No 0804, entitled *Wealth inequality and household structure: US vs. Spain*, by Olympia Bover. 2. See Bover et al (2005), for a comparison between Spain, the United States, Italy and the United Kingdom, using harmonised definitions of asset holdings based on household surveys, and the recently created LWS database, which includes wealth survey data from various countries. 3. Available survey-based wealth estimates typically refer to households and not individuals.

	Gini	Median (a)	p75/p25	p25/p50	p75/p50	p90/p50
All households						
United States	0.80	66	22.7	0.15	3.4	8.5
Spain	0.56	102	4.3	0.42	1.8	3.2
Households with head aged 35-54						
United States	0.77	79	13.6	0.21	2.9	6.7
Spain	0.54	114	3.8	0.46	1.8	2.9
Couple households with head aged 35-54						
United States	0.74	118	8.1	0.32	2.6	5.6
Spain	0.52	121	3.6	0.50	1.8	2.9
Couple households with head aged 35-54 and with child under 16						
United States	0.74	121	8.1	0.31	2.5	4.9
Spain	0.50	118	3.5	0.52	1.8	2.7
All households, using the square root equivalence scale ($\sqrt{\text{number of household members}}$)						
United States	0.80	45	22.5	0.15	3.4	8.6
Spain	0.56	62	4.3	0.44	1.9	3.3
All households, per head (scaling by number of household members)						
United States	0.81	31	22.5	0.15	3.3	9.0
Spain	0.58	37	4.5	0.43	1.9	3.7

SOURCES: Survey of Household Finances (EFF) 2002 and Survey of Consumer Finances (SCF) 2001.

a. In thousands of 2002 euro.

significantly reduced when homogeneous demographic groups are compared, such as couple households whose head is aged 35-40. To identify the influence of demographic factors on the differences between the wealth distributions of Spain and the United States, the wealth distribution that would be observed in the United States if households there had the same composition as in Spain (the counterfactual distribution) is estimated, using comparable household-level wealth-survey data available in both countries relating to the early 2000s.⁴

The next section describes the data and the household demographic structure classification adopted. The third section describes the construction of the counterfactual distribution for the United States, and presents the results of the comparisons in graphic form and using a set of summary statistics of position, dispersion and inequality. Also, the types of households that contribute most to the compositional differences are identified, and information is supplied on the differences in the wealth distributions of the two countries by comparable household groups. Lastly, the fourth section contains some final comments.

Data and methodology

The impact of household structure on the differences in the wealth distribution between Spain and the United States is assessed by estimating (non-parametrically) the counterfactual distribution that would exist in the United States if households had the same demographic characteristics as in Spain.⁵ This estimation requires microeconomic data on households' assets and debts, such as those supplied for the United States by the 2001 Survey of Consumer Fi-

4. The data for the United States are drawn from the Survey of Consumer Finances (SCF) 2001, while those for Spain are drawn from the first wave of the Spanish Survey of Household Finances (EFF) 2002. 5. On the construction of counterfactual distributions, see DiNardo, Fortin and Lemieux (1996).

nances (SCF), sponsored by the Federal Reserve Board, and, for Spain, by the Survey of Household Finances (EFF) 2002, conducted by the Banco de España. The aim of both surveys is to collect detailed information on the assets and debts of households, along with socio-demographic and income variables. The differences mentioned in the introduction are observed in the data used, i.e. in the United States there are more single person households (40%, as against 27%), more lone parent households, especially lone mothers (8% in the United States, as against 2% in Spain). Also, a higher proportion of households headed by young people is observed in the United States.

Comparable measures of assets and debts are constructed on the basis of the variables available in both surveys. The wealth of each household is obtained as the sum of its assets (excluding human capital and Social Security pension rights) less its debts. All monetary amounts are expressed in 2002 euro and have been adjusted for inflation in the United States and for purchasing power parity for 2002. An important characteristic of the SCF and the EFF is that, although both are representative of the population, they oversample the richest households. This sample characteristic is crucial for the accuracy of some of the wealth distribution statistics that are normally calculated. To illustrate this point, the sample errors⁶ that would have resulted from random sampling of the US population, without oversampling of the richest households, are calculated in Bover (2008). The difference in accuracy is substantial; for example, the 95% confidence interval for the percentage of wealth held by the richest 1% of households is, in the absence of oversampling, 16 percentage points (pp), which is almost as wide as the international interval of 20 pp (according to the evidence in Davies and Shorrocks (2000) cited in the introduction). With oversampling, by contrast, the width of this interval is 2 pp.

To characterise the household structure in both countries, 16 types of household are considered. These differ according to the age and marital status of the household head, the presence of children and, in the case of single person households, their gender (for a complete descriptive list of these groups, see Table 2). The selection of groups is based on the differences existing between the two countries, and on the need to ensure a sufficient number of observations per group.

It is important to point out that the aim of this paper is to estimate the extent to which the demographic structure of households explains the observed differences in wealth distributions, not to try to approximate personal wealth distributions. Differences in household structure cannot simply be reduced to a question of size. In fact, to analyse the distribution of wealth across individuals it is not sufficient to normalise household wealth using some equivalence scale; rather, an inter-temporal theoretical framework would be needed, an aspect that is not developed in this paper. In any case, Table 1 shows some results of normalising household wealth using the square-root equivalence scale and using per capita wealth. As can be seen, these standardisations reduce the differences between the medians (albeit by less than when demographically similar households are compared), but not those between measures of dispersion.

Cross-country differences in demographic structure may be associated with ethnic, religious or cultural characteristics. It is well known that these characteristics are correlated with demographic variables, such as divorce rates and the number of children, and in this respect the United States is ethnically and culturally more heterogeneous than Spain. However, a more direct transmission mechanism can be expected to exist between wealth accumulation and

6. Bootstrap standard errors.

	Percentage in population		Median net wealth (a)		Own main residence (%)		
	US	SPAIN	US	SPAIN	US	SPAIN	US with Spanish household structure
ALL HOUSEHOLDS	100	100	65.8	101.9	67.7	81.9	74.9
AGED UNDER 25							
1. Couple	2.4	0.6	5.8	12.0	21.0	41.7	
2. Single man	1.4	0.6	2.0	3.2	3.9	49.2	
3. Single woman	1.8	0.4	0.3	6.5	11.7	49.4	
AGED 25-34							
Couple							
4. Without children	3.4	4.0	34.5	71.0	56.4	79.5	
5. With children	6.9	5.4	26.0	70.2	63.8	73.9	
Single woman							
6. Single man	2.6	1.7	9.7	62.6	35.2	55.6	
7. Without children	1.9	1.1	6.1	30.4	25.4	53.3	
8. With children	2.4	0.3	1.8	10.8	25.1	59.6	
AGED 35-54							
Couple							
9. Without children	12.0	12.0	118.6	130.0	81.4	83.4	
10. With children	16.0	20.9	117.5	116.1	83.3	83.3	
Single man							
11. Single man	5.2	3.6	36.5	78.5	54.3	67.0	
Single woman							
12. Without children	5.4	3.9	25.0	108.1	51.2	78.9	
13. With children	4.2	1.3	11.7	68.4	48.6	65.9	
AGED OVER 54							
14. Couple	19.7	28.2	220.9	122.4	89.3	90.5	
15. Single man	4.4	3.8	85.0	86.1	75.4	77.1	
16. Single woman	10.2	12.1	60.7	78.6	67.1	82.6	

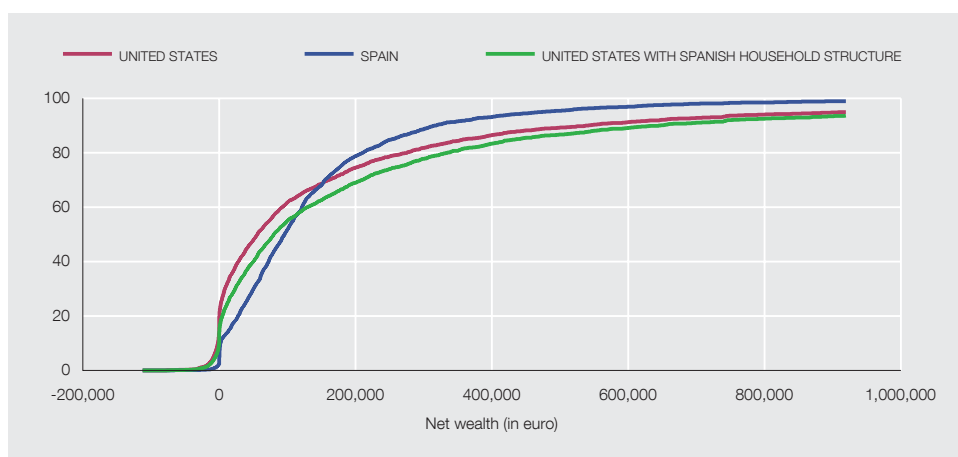
SOURCES: Spanish Survey of Household Finances (EFF) 2002 and Survey of Consumer Finances (SCF) 2001.

a. In thousands of 2002 euro.

the demographic structure, operating, for example, through household economies of scale or household dissolution. Establishing a relationship between household structure and ethnic or cultural diversity is beyond the aims of this paper. The economic notion underlying the paper is that household demographic characteristics may facilitate or hamper the capacity to save and wealth accumulation.

Counterfactual US wealth with the Spanish household structure

The wealth distribution in the United States can be obtained as a weighted average of the distribution of wealth for each group of households, weighting each group by its weight in the population. If these weights are replaced by those corresponding to the weights of such groups in Spain, a counterfactual US wealth distribution is obtained, i.e. the wealth distribution that would exist in the United States if the relative weights of the various population groups were the Spanish ones instead of the American ones. In order to assess the extent to which the differences between the wealth distribution observed in the United States and the Spanish one stem from differences in household structure between the two countries, we examine whether the differences between the United States and Spain in terms of inequality and other characteristics are reduced or amplified when the Spanish wealth distribution is compared with the counterfactual US distribution, with the same household structure.



An important component of household wealth, which differs sharply across countries, is home ownership. An illustrative and interesting example of the general method described above is to observe the differences in the percentage of households that own their main residence. In the United States 68% of households own their main residence, while in Spain this percentage is 82%. However, the differences across the various types of household are substantial. In the United States this percentage ranges from 4% for single men under the age of 25 to 89% for couples over 54 (see column 5 of Table 2). When the percentages of households that own their main residence for each group of households in the United States are weighted by the weights of each group in Spain (see column 2 of Table 2), the counterfactual percentage of US households that own their main residence rises to 75%. Accordingly, half of the difference between the proportions of households that own their main residence in the United States and in Spain may be attributed to differences in the predominant household types in each country.

Chart 1 presents the observed cumulative distribution function for Spain and the observed and counterfactual functions for the United States. That is to say, for each level of wealth on the x-axis, the proportion of households whose wealth is less than or equal to that level is given for each of these three cases. Also, certain measures are supplied that summarise the differences between the distributions (see columns 1 to 3 of Table 3) and that quantify the differences when only the proportion of the different types of households is changed (see columns 8 and 9 of Table 3) and the differences when household composition is kept constant (see columns 6 and 7 of Table 3). The differences between Spain (SP) and the United States (US) are broken down for the different statistics (m) in the following way:

$$m_{SP} - m_{US} = (m_{SP} - m_{US}^{SP}) + (m_{US}^{SP} - m_{US})$$

The first term reflects the difference in wealth for the same household structure and the second the difference when only the household structure varies.

Household wealth is lower in the United States than in Spain up to approximately the 67th percentile. At that point the two distributions cross and the situation is reversed. Chart 1 shows that the number of households with zero or very low net wealth is considerably greater in the United States (9.6%) than in Spain (1.4%). However, the household structure existing in the United States explains a large proportion of this difference, as the counterfactual figure (6.4%) shows. In general, the differences between Spain and the United States are consider-

	US	SPAIN	Counterfactual US	Total difference		Difference for same household composition		Difference when only household composition changes	
	m_{US}	m_{SP}	m_{US}^{SP}	$m_{SP}-m_{US}$	%	$m_{SP}-m_{US}^{SP}$	%	$m_{US}^{SP}-m_{US}$	%
% households with negative or zero net wealth	9.6	1.4	6.4	-8.2	100	-5.0	61.0	-3.2	39.0
p10 (a)	0.04	6.4	1.7	6.3	100	4.6	73.4	1.7	26.6
p25 (a)	9.7	43.2	22.6	33.5	100	20.6	61.4	12.9	38.6
Median (a)	65.8	101.9	91.6	36.1	100	10.3	28.5	25.8	71.5
Mean (a)	299.8	160.4	367.3	-139.4	100	-206.9	148.4	67.5	-48.4
p75 (a)	221.1	185.7	282.9	-35.4	100	97.1	274.5	61.7	-174.5
p90 (a)	562.7	330.2	664.0	-232.6	100	-333.8	143.5	101.3	-43.5
(p75-p25)/p25	21.7	3.3	11.5	-18.4	100	-8.2	44.6	-10.2	55.4
(p50-p25)/p25	5.7	1.4	3.0	-4.3	100	-1.6	37.2	-2.7	62.8
(p75-p25)/p50	2.3	0.8	2.1	-1.5	100	-1.3	86.5	-0.2	13.5
(p90-p50)/p50	7.5	2.2	6.2	-5.3	100	-4.0	75.5	-1.3	24.5
Gini	0.80	0.56	0.78	-0.24	100	-0.22	91.7	-0.02	8.3
Percentage of wealth owned by:									
Richest 1%	32.1	13.2	30.0	-18.9	100	-16.8	88.9	-2.1	11.1
Richest 5%	56.9	29.5	55.0	-27.4	100	-25.5	93.1	-1.9	6.9
Richest 10%	69.0	41.8	67.1	-27.2	100	-25.3	93.0	-1.9	7.0

a. In thousands of 2002 euro, except columns 5, 7 and 9.

ably reduced when Spain is compared with the counterfactual US measures in the first half of the distribution. In fact, in the lower part of the distribution, the counterfactual distribution is situated between the Spanish and US distribution. For example, the role played by household structure is very important around the median which, in the United States, would increase from €65,800 to the counterfactual level of €91,600, substantially closer to the Spanish median of €101,900. Merely changing household composition would therefore reduce the difference in the median between the two countries by 71.5%. Also, household structure accounts for 55% of the difference in the inter-quartile range.

Conversely, in the upper part of the distribution, counterfactual US wealth exceeds actual wealth in the United States and in Spain. This indicates that, were the household structure in the United States the same as in Spain, the differences in household wealth in the upper part of the distribution would be even greater than the actual ones. The explanation is that in Spain there is a higher proportion of the type of households that in the United States have high levels of wealth (e.g. couples over the age of 54). These differences peak at around the 75th percentile. At that point, were it not for the difference in household composition, the difference between Spain and the US would be 2.75 times greater than the actual difference (see Table 3).

The differences between the statistics normally used in the literature to quantify the degree of inequality, such as the Gini coefficient and the percentage of wealth held by the richest 1% of households (and also by the richest 5% and 10%) are also analysed. In Table 3 it can be seen that, unlike in the case of position and dispersion measures based on various percentiles of the

distribution, the results for the Gini coefficient and for percentages of wealth in the hands of the richest households do not vary much between the actual and counterfactual US distributions. However, this is the net effect of smaller differences in the lower part and larger differences in the upper part of the distribution. This result shows a clear information gain when the entire wealth distribution is compared, instead of using more summary measures of inequality.

The complete version of this paper analyses which types of households of the 16 groups considered particularly contribute to these differences in composition. The results show that the households responsible for the changes in the counterfactual US distribution are, above all, households made up of: (i) couples whose head of household is aged 55 or over; (ii) couples and single women aged under 25; (iii) single women aged under 55 with children; and (iv) couples aged 35-54 with children. For example, if we consider the group of households made up of single women aged 25-34 with children, on the one hand, and other households, on the other, and their relative weights in the United States (2.4% and 97.6%) are replaced by those in Spain (0.3% and 99.7%), the US median would rise by some €4,100. In the case of couples aged under 25, the increase in the median would be €3,800. Typically, type (i) and (ii) households have little wealth in both countries (see columns 3 and 4 of Table 2) and the higher incidence of these types of households in the United States than in Spain accounts for a large part of the positive difference between counterfactual and actual wealth in the United States. By contrast, the lower incidence of couples aged over 54 in the United States (19.7%) in comparison with Spain (28.2%) and couples aged 35-54 with children (16%, vis-à-vis 20.9%) reduces the US quantiles proportionately more at the median and in the upper part of the distribution. These households are typically well off and, if their weight in the United States were the same as in Spain, the US median would increase by €10,900 and €3,800, respectively.

Finally, information is provided on the differences between the wealth distributions of the two countries for each type of household. For some types of households, the distributions are very similar, for example households consisting of lone mothers aged 25-34 with children. Conversely, for other groups the distributions are very different: for example, couples aged over 54 [for more details see Bover (2008)]. To study the significance of the differences in the distributions in each group at the median and at the other quartiles of the distribution, regressions are performed using the indicators of each group as regressors.

Households consisting of couples aged 25-34, with children, have significantly higher wealth in Spain than in the United States at all the quartiles considered: at the 25th percentile they have an extra €20,900; at the median €44,300; and at the 75th percentile €56,400. By contrast, couples aged over 54 have significantly less wealth in Spain than in the United States at all the points of the distribution considered: they have €14,500 less at the 25th percentile, €98,500 less at the median and €301,900 less at the 75th percentile. It is interesting to note that middle-aged couples, i.e. aged 35-54, with children, are significantly richer in Spain in the lower part of the distribution, significantly less rich in the upper part of the distribution and without significant differences at the median.

Conclusions

This article highlights the relationship between a country's household structure, as given by its cultural and social customs, and its distribution of wealth. For this purpose, two countries with very different household structures are compared (the United States and Spain), using the US Survey of Consumer Finances 2001 and the Spanish Survey of Household Finances (EFF) 2002.

In the case of the lower part of the distribution, controlling for household demographic characteristics is found to explain a large part of the observed difference between the United States and Spain. In fact, it accounts for 71% of the difference in the median and 55% of the

difference in the inter-quartile range. By contrast, in the wealthiest bracket of the population, the differences in household structure mask even greater differences between the two countries, since the latter increase when the same household structure is assumed. For example, at the 75th percentile (i.e. that level of wealth below which the wealth of 75% of households is situated and above which the wealth of the other 25% is situated) the difference between Spain and the US counterfactual would be 2.75 times the actual difference between the United States and Spain. It is interesting to note that imposing the Spanish household structure on the US wealth distribution has a limited effect on summary measures of inequality, such as the Gini coefficient. However, this is the net result of smaller differences in the lower part of the distribution and larger differences in the upper part, which shows that relevant information may be missed if the entire distribution is not considered.

As an illustrative example of the importance of differences in household structure, we calculate the percentage of US households that would own their main residence if the household demographic structure in the United States were similar to the one prevailing in Spain. It is estimated to be 75%, in between the 68% level observed in the United States and the 82% level in Spain.

The main groups responsible for the differences between the actual and counterfactual US distributions are identified, namely (i) couples aged over 54, (ii) very young single women and couples (under 25), (iii) single women under the age of 55, with children, and (iv) couples aged 35-54, with children. For example, if the percentage of households made up of a couple over the age of 54 were the same in the United States as in Spain (28.2% instead of 19.7%), the US median would rise by €10,900 and the 25th and 75th percentiles by €3,300 and €28,400 respectively.

Looking at comparable household groups, the main feature to emerge is that the differences between the United States and Spain in terms of household wealth change over the life-cycle for a large group of the population, namely couples (with children when young), displaying an interesting pattern that is reversed with age. In the United States they have significantly less wealth at all quartiles of the distribution when they are young (25-34), significantly more at all quartiles when older (aged over 54), and they have less in the lower part of the distribution, but more in the upper part, when they are middle aged (35-54).

In short, the distribution of wealth obtained for the United States, when the US household structure is assumed to be the same as in Spain, has a lower part rather similar to the one in Spain, but is even more unequal in the upper part. This shows that cross-country differences in household structure should be taken into account in any explanation of differences between wealth distributions.

16.9.2008.

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