INCOME, CONSUMPTION AND WEALTH INEQUALITY IN SPAIN

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BANCO DE ESPAÑA

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Abstract

This document analyses the level of inequality in Spain and how it evolved over the course of the past crisis and the early stages of the current recovery. To this end, it first introduces the various dimensions of wage, income, consumption and wealth inequality, and analyses how they have developed. The analysis shows less wage dispersion in Spain than in other comparable economies, even after the crisis years, while the surge in unemployment during the period resulted in a high level of inequality in per capita income. The level of inequality in Spain is more moderate when total gross household income is analysed, decreasing during the crisis as a result of pensions developing more favourably than other sources of income, in conjunction with young people delaying setting up home. Inequality in per capita consumption rose during the crisis, particularly as a result of a decrease in expenditure on consumer durables by low-income households. Wealth inequality exceeds income inequality and increased during the downturn as a result of financial assets outperforming real assets. Nevertheless, Spain's wealth inequality is moderate by international standards, as ownership of real assets is more widespread than in other countries. The way inequality has evolved during the early stages of the current economic recovery shows that falling unemployment has enabled a reduction in wage income inequality, as well as in per capita income inequality, albeit to a lesser extent.

Keywords: inequality, wage, labour supply, personal income, household saving, household consumption, wealth.

JEL classification: D31, J31, D14, E21.

Resumen

El documento analiza el nivel y la evolución de la desigualdad en España durante la última crisis y la fase inicial de la actual recuperación. Para tal fin, el trabajo introduce, inicialmente, distintas dimensiones de la desigualdad en términos de salarios, renta, consumo y riqueza, y analiza su evolución. Este análisis muestra una reducida dispersión salarial en España en relación con otras economías de nuestro entorno incluso tras los años de crisis, mientras que el fuerte aumento del desempleo durante ese período provocó una elevada desigualdad de la renta per cápita. El nivel de desigualdad en España se modera cuando se analiza la renta bruta total del hogar. Además, este nivel se redujo durante la crisis como consecuencia de la evolución positiva de las pensiones en relación con otras fuentes de renta y al retraso en la edad de emancipación de los jóvenes. Durante la crisis, se incrementó la desigualdad en el consumo per cápita, sobre todo, por la caída en el gasto de bienes duraderos en los hogares con bajos ingresos. La desigualdad de la riqueza es mayor que la de la renta y se incrementó durante el período recesivo debido al mejor comportamiento de los rendimientos de los activos financieros que al de los reales, si bien España presenta un grado de desigualdad de la riqueza moderado en comparación al de otros países ya que la tenencia de activos reales es relativamente más generalizada que en otros países. La evolución de la desigualdad durante las fases iniciales de la actual recuperación económica revela que la caída del paro ha permitido una reducción de la desigualdad de las rentas salariales y, aunque de forma más limitada, también de la renta per cápita.

Palabras clave: desigualdad, salario, oferta de trabajo, renta personal, ahorro del hogar, consumo del hogar, riqueza.

Códigos JEL: D31, J31, D14, E21.

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1 Introduction

Since the onset of the crisis, income inequality has increased in many OECD countries, including Spain. In fact, this has been a focal point of academic analysis in the past few decades and, more recently, has appeared on the agendas of various national authorities and international bodies.

Regardless of other important social considerations, the level of inequality affects economic growth through different channels. Specifically, a certain level of wage inequality between workers based on different productivities is an incentive to invest in human capital and, therefore, an incentive for economic growth.[1] However, a high level of per capita income inequality may affect social cohesion and may fuel social conflict, undermining the security of certain investments[2] and possibly even reducing incentives to work and to invest among certain groups.[3] Moreover, household wealth affects its consumption level and the way different fiscal and monetary policies are transmitted to the economy.

This paper analyses the level of inequality in Spain and how it evolved over the course of the past crisis. Following a description of the inequality dynamics in the international setting, the paper introduces and links the different dimensions of wage, income, consumption and wealth inequality in Spain (and respect to other countries described Box 1), before presenting an analysis of how inequality evolved during the crisis (see Figure 1 for details of the structure and key messages of the paper and Figures 2 and 3 for a description of data and concepts used).[4] As one of the main objectives is to analyse the relationship between the inequality in the above-mentioned variables, the Banco de España's Survey of Household Finances (EFF) is the chief data source used, which means that this part of the analysis concludes in 2014, which is the last year for which data are available. However, Box 2 provides up-to-date information on inequality in household earnings and income in the early years of the recovery (specifically between 2014 and 2016) drawing on other sources of information.

1 See H. M. Mueller, P. P. Ouimet and E. Simintzi (2017), "Within-firm pay inequality", *The Review of Financial Studies,* 30(10), 36053635.

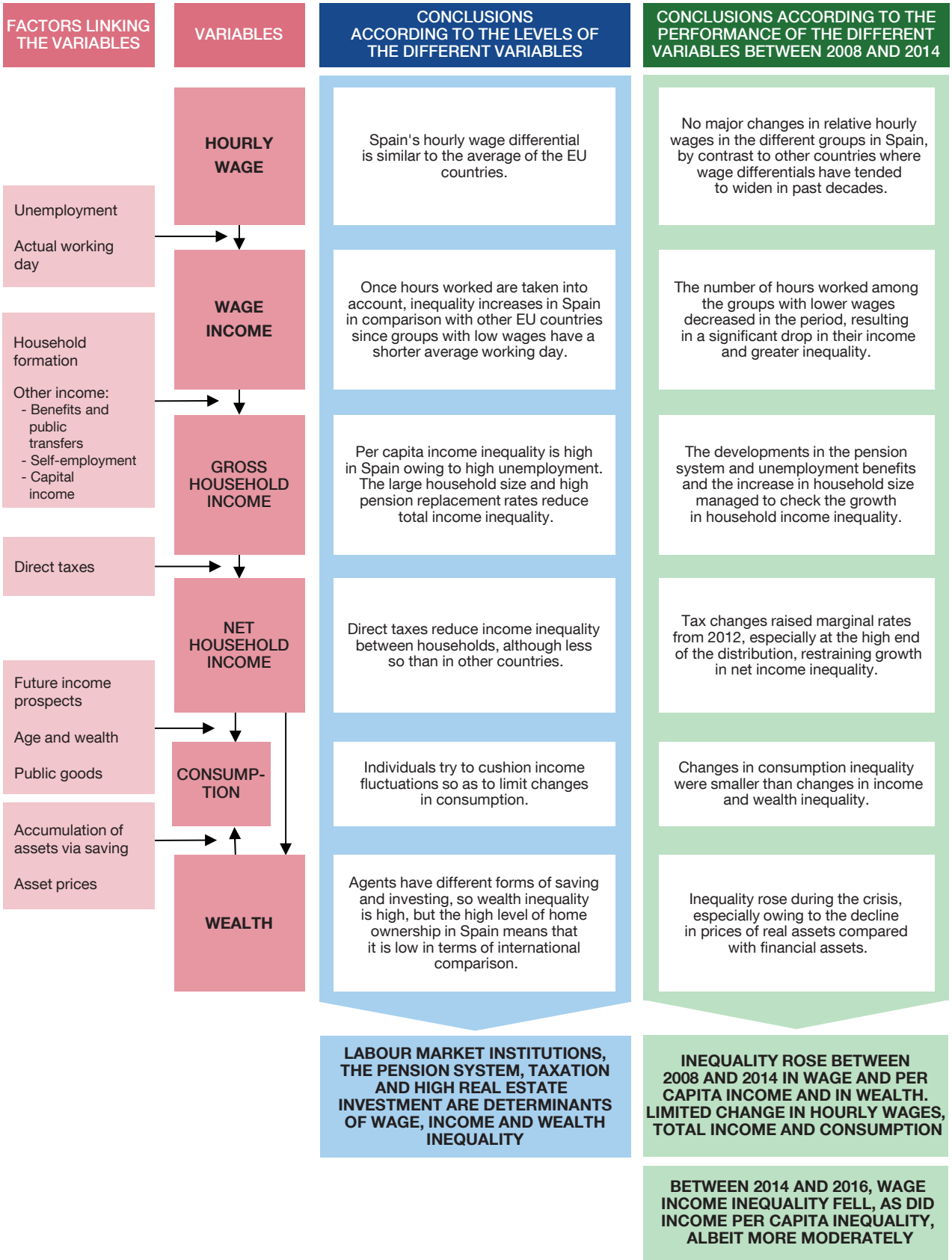
2 H. Grossman, "A general equilibrium model of insurrections", American Economic Review, 81, 1991, pp. 912-921.

3 T. Persson and G. Tabellini, 1994, "Is inequality harmful for growth? Theory and evidence", *American Economic Review,* 48, pp. 600621; and A. Alesina and D. Rodrik, 1994, "Distributive politics and economic growth", *Quarterly Journal of Economics,* 109, pp. 465-490.

4 Based on R. Blundell (2011), *"From income to consumption: Understanding the transmission of inequality"*, *Focus*, 28(1), pp. 23-30.

INCOME, CONSUMPTION AND WEALTH INEQUALITY: RELATIONSHIP BETWEEN THE VARIABLES AND MAIN CONCLUSIONS DRAWN FROM THEIR RECENT PERFORMANCE

FIGURE 1



SOURCE: Banco de España.

SOURCE DATABASES AND CONCEPTS INCLUDED IN THE VARIABLES FIGURE 2

DATABASES		VARIABLES	DESCRIPTION
SPANISH STRUCTURE OF EARNINGS SURVEY (EES)	Compiled by INE EES 2006, EES 2014 — All calculations use the EES weights. — The data on income and its components refer to the current year. — EES population: all wage and salaried workers employed in social security reporting units, irrespective of their size, and registered for the purposes of social security throughout the month of October of the reference year. — Excluding the CNAE 2009 sectors: Agriculture and fishing; Public administration and defence; Compulsory social security; Activities of households as employers of domestic staff; Activities of extraterritorial organisations and bodies. — Excluding chairpersons and members of boards of directors and, in general, all persons whose remuneration is mainly in the form of fees or profits rather than wages.	HOURLY WAGE	Calculated by dividing the gross monthly wage by the normal working week in the firm (taking as reference a week in October), multiplied by 4.35 plus the number of overtime hours worked in that month. Monthly wage includes: base wage, overtime pay, the two "extra" payments (as Spanish wages are generally paid in 14 rather than 12 monthly payments) and all pay supplements. Deflated using the CPI.
		WAGE INCOME	The gross monthly wage calculated from the gross annual wage, deflated using the CPI. Gross annual wage reflects total gross earnings, including payments in kind and extraordinary payments (the "extra" payments indicated above, profit-sharing, performance-related pay, incentives, bonuses and other remuneration that is variable in frequency or amount).
SPANISH SURVEY OF HOUSEHOLD FINANCES (EFF)	Compiled by Banco de España EFF 2002, EFF 2008, EFF 2011, EFF 2014. — All calculations use the EFF weights and the five imputations (see "Survey of Household Finances (EFF) 2014: methods, results and changes since 2011", *Economic Bulletin* 1/2017, Banco de España). — The data on income and its components refer to the previous year. — All variables are expressed in 2014 euro, using the CPI as deflator.	WAGE INCOME	A person's gross annual income from wage or salaried work (including income in kind, the "extra" payments indicated above, bonuses, commission-based pay and overtime pay).
		GROSS HOUSEHOLD INCOME	Total household income includes wage income, self-employment income, capital income, unemployment benefits, pensions and other transfers of all household members, before tax and social security contributions, for the whole of the previous calendar year.
		NET HOUSEHOLD INCOME	Estimated after-tax household income. Calculated by applying to gross household income a function that relates gross income to the average effective personal income tax rate. The parameters of each function are estimated using the IEF-AEAT panel of microdata of persons filing personal income tax returns in Spain, in accordance with equations (1) and (5) of E. García-Miralles, N. Guner and R. Ramos (2018), "The Spanish Personal IncomeTax: Facts and Parametric Estimates", mimeo.
		TOTAL HOUSEHOLD CONSUMPTION	Sum of annual expenditure on durable and non-durable household goods (includes food, schools, travel, mobile phones, service charges, utility bills...). Expenditure on durable goods is obtained as the depreciation value of the stock of the household equipment of real estate property and the value of household vehicles and other modes of transport.
		PER CAPITA INCOME / CONSUMPTION	Household income / consumption adjusted using the OECD equivalence scale which assigns a value of 1 to the first household member, 0.5 to each additional adult and 0.3 to each householder member under 14 years of age.
		NET WEALTH	Total assets (real and financial) minus debt, excluding the value of cars or other vehicles.

SOURCE: Banco de España.

INEQUALITY CONCEPTS AND MEASURES FIGURE 3

PERCENTILES	Percentiles order the population from lower to higher income, wealth, consumption, etc. The percentiles indicate a person's or household's position compared with the rest of the population. For example, the 10th income percentile is the income level below which the 10% ofindividuals with the lowest income are to be found, and the 90th percentile the income level above which the 10% of individuals with the highest income are to be found.	
DECILES	When all individuals are ordered by a specific variable from lower to higher and the population is divided into ten equal parts (i.e. with 10% of the population in each group), the deciles are obtained. Thus, the first decile is the 10th percentile.	
PERCENTILE RATIOS	Inequality may be measured by the ratio between the income / consumption / wealth of the persons in the different percentiles of the distribution; the higher the ratio, the greater the inequality.	
	P90/P10	The ratio between the income / consumption / wealth level of the 90th and of the 10th percentile.
	P50/P10	The ratio between the income / consumption / wealth level of the 50th and of the 10th percentile.
	P90/P50	The ratio between the income / consumption / wealth level of the 90th and of the 50th percentile.
	P75/P25	The ratio between the income / consumption / wealth level of the 75th and of the 25th percentile.
WEALTH CONCENTRATION	The concentration of wealth is measured as the percentage of wealth owned by the 1%, 5% or 10% with the most wealth.	
GINI INDEX	This index measures the extent to which the distribution of income / consumption / wealth of individuals or households in an economy deviates from perfect equality. Thus, a Gini index of 0 represents perfect equality (everyone has the same income), while a figure of 1 represents perfect inequality (one person has all the income).	

SOURCE: Banco de España.

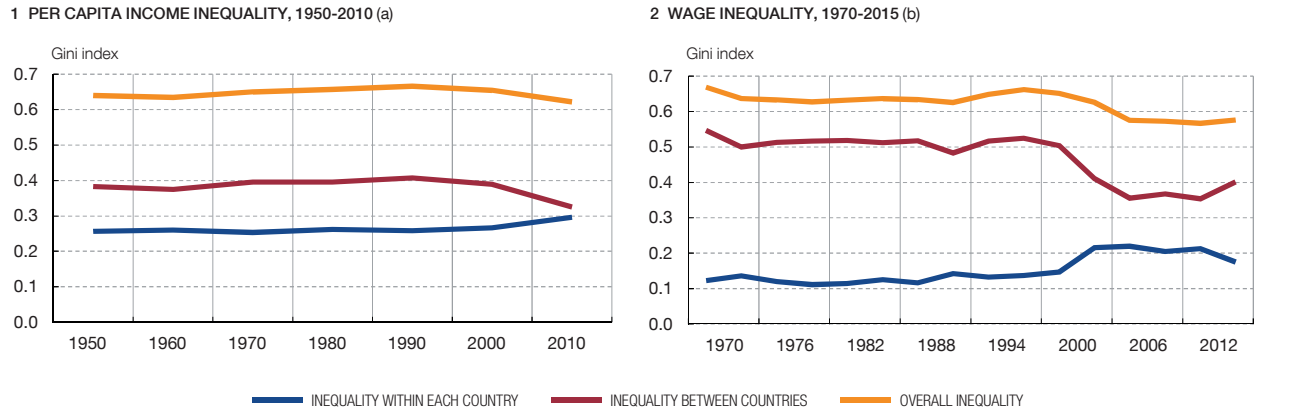
2 Inequality in the international setting

The increase in inequality in per capita income observed in most countries over the past two decades has been compatible with a decrease in overall inequality worldwide (see Chart 1). The change in the distribution of household per capita income over the past two decades has been marked by two opposing trends. First, inequality between countries, measured as the differences in average levels of per capita income, has declined as a result of the process of convergence experienced by some of the main emerging market economies, especially in Asia. Second, this process has taken place at the same time as per capita income inequality has increased within a good number of advanced economies and many emerging market economies, save in Latin America.[5] At the global level, all the signs seem to indicate that the first trend has prevailed over the second since, taking as a reference household income irrespective of country of residence, inequality has diminished.

Technological change, globalisation of production and lower competition in some productive sectors are among the factors that might explain the increase in inequality in wage income and, therefore, in per capita income within countries. In terms of wage income, the increase in differentials between workers has been linked to the growing demand for skilled workers as a result of technological change, which has tended to eliminate certain jobs performed by less-skilled workers. Another explanation offered for this trend in developed

GLOBAL INEQUALITY HAS DECLINED, EVEN THOUGH INEQUALITY WITHIN COUNTRIES HAS INCREASED **CHART 1**

Overall inequality worldwide has decreased in the past two decades, as differences in per capita income between countries have narrowed, more than offsetting the growth in per capita income inequality within most economies.



SOURCES: See notes.

a Morrison and Murtin, 2011, and Bourguignon and Morrison, 2002. Inequality measured as a Gini index, rescaled according to the Theil index.
b O. Hammar and D. Waldenström (2017), Global Earnings Inequality, 1970-2015, CEPR Discussion Paper 12019.

Download

5 See G. Cruces, C. García Domench and L. Gasparini (2014), "Inequality in Education: Evidence for Latin America", in G. Cornia (eds.), *Falling Inequality in Latin America. Policy Changes and Lessons*, Oxford University Press, pp. 318-339; and A. de la Torre, A. Ize, G. Beylis and D. Lederman (2015), *Jobs, wages, and the Latin American slowdown*, Washington, D.C. World Bank Group.

countries has been globalisation, as firms have transferred part of their productive processes, especially those performed by less-skilled workers, to emerging market economies and developing countries. Lastly, it is argued that these same factors may have encouraged business concentration, reducing competition and workers' bargaining power.[6]

At the same time, in the past few decades the concentration of wealth has risen. According to the World Wealth and Income Database (WID), the percentage of wealth held by the richest 10% of the population of the United States, France or the United Kingdom has risen by between 5 pp and 9 pp in the last 25 years. The increase has been particularly marked among the richest 1% of the population, giving rise to proportions that amply exceed 50% of total household wealth.[7] The same trend is observed in emerging market economies such as China, for example, where the concentration of wealth has increased even more sharply: there the ratio has risen by 20 pp over the same period, so that the richest 1% of the population holds 67% of total wealth. This change has been driven by the increase in the capital-product ratio, which has fuelled growth in the income obtained by owners of capital as a proportion of aggregate income in the economy.[8]

6 See, for example, D. Acemoglu and D. Autor (2011), "Skills, tasks and technologies: Implications for employment and earnings", *Handbook of Labor Economics*, 4, pp. 1043-1171; R. Feenstra and G. Hanson (1999), "The impact of outsourcing and high-technology capital on wages: estimates for the United States, 1979–1990", *The Quarterly Journal of Economics*,114 (3), pp. 907-940; and D. Autor, D. Dorn, L. Katz, C. Patterson and J. Van Reenen (2017), «The fall of the labor share and the rise of superstar firms", NBER Working Paper 23396.

7 See F. Alvaredo, L. Chancel, T. Piketty, E. Saez and G. Zucman (2018), *World Inequality Report 2018*, Harvard University Press.

8 T. Piketty (2014), *Capital in the 21st Century,* in Cambridge, MA: Harvard University Press; and L. Karabarbounis and B. Neiman (2014), "The Global Decline of the Labor Share", *Quarterly Journal of Economics*, 129(1), pp. 61-103.

3 Relationship between income, consumption and wealth inequality in Spain

Inequality analysis can focus on different variables that are closely interconnected. For example, there are individual differences in hourly wages, in the ability to obtain income other than labour income, in access to public goods or in decisions on household formation, consumption and saving. In general, all these measures are interconnected (see Figure 1 which illustrates the connections and differences between each of these variables). Specifically, workers' wage income is a function of their hourly wage and of the number of hours they work over a specific period. In turn, households' gross income depends first on the members of the household and how their time is organised between paid work, housework and leisure. Moreover, wage income is not the only component of household income, as in addition to income from paid employment there is income from self-employment and there are unemployment benefits, pensions and other transfers that serve as a form of social insurance in situations of hardship. The total sum of all these forms of income is not available for consumption, as a portion must be deducted for payment of taxes, giving net disposable income. Lastly, households themselves decide what portion of their net income they wish to consume, depending among other factors on the level of uncertainty underlying their future income expectations, their stage of life, their available wealth and the public or subsidised goods available to them. All income that households decide not to consume are savings; households' wealth will vary according to the assets in which they invest their savings, the price paid and the rate of return obtained.

This section analyses inequality in Spain in terms of hourly wages, wage income, household income, consumption and wealth.[9] In particular, it examines in depth the economic decisions and economic policy instruments that generally mean that inequality is lower when compared in terms of income and consumption and higher when the focus is on wealth.

3.1 Individual wage income

On average, the wage income of Spanish household members amounts to 60% of the household's total annual income, making it a prime candidate for analysis in the study of inequality. The inequality observed in this variable is analysed below, distinguishing between inequality stemming from differences in hourly wages and that stemming from differences in the number of hours worked.

3.1.1 HOURLY WAGES

In 2014 hourly wage inequality in Spain was similar to the median of the euro area countries. Drawing on information furnished by Eurostat, in 2014 the hourly wage of workers in the ninth decile of the distribution in Spain was 3.3 times higher than that of those in the first decile. This inequality indicator (the P90/P10 ratio) was close to the median of the EU countries: below countries such as Portugal, Ireland, Germany or the United Kingdom, but above France, Belgium and the Nordic countries (see Box 1 for more details on the international comparison).

9 See Figures 2 and 3 for more information on the definition of data sources, concepts and variables. Note that this paper analyses inequality and not poverty, which is generally defined as the population that does not meet a specific income threshold (50% or 60% of median income).

TAKING INTO ACCOUNT HOURS WORKED, WAGE DIFFERENCES WIDEN TABLE 1

Hourly wage differences widen when inequality is calculated on monthly or annual earnings rather than hourly wages, since groups that earn lower hourly wages also tend to work fewer hours on average.

	Real hourly wage		Real monthly wage	
	2006	2014	2006	2014
Gini	0.30	0.28	0.32	0.35
P90/P10	3.36	3.27	4.03	5.59
P50/P10	1.54	1.55	1.93	2.54
P75/P25	1.89	1.87	1.92	2.18
P90/P50	2.18	2.11	2.08	2.20

SOURCE: INE (EES).

Wage differences were smaller at the low end of the distribution. As Table 1 shows, in 2014, while the P90/P10 ratio for hourly wages was 3.3, the P50/P10 ratio was just 1.6. At the high end of the distribution there were larger differences; specifically the P90/P50 ratio was 2.1.

A larger proportion of women, young people, workers with low levels of educational attainment and those with limited tenure are concentrated at the low end of the distribution. Specifically, Table 2 shows that in 2014 63% of workers with wages in the first decile of the wage distribution are women, although they account for 48% of all wage-earners. In turn, most of the workers in this first decile (62%) have no education beyond compulsory schooling, compared with 43% for all wage-earners. In addition, workers' age and tenure are higher in the higher deciles of the wage distribution.

There are significant wage differences in Spain by gender, age, level of educational attainment and tenure, although they are not especially high compared with other countries. Chart 2 presents the result of a statistical model designed to separate the effect of each such variable on hourly wages. This analysis reveals significant negative wage differentials for women, young people, new hires and workers with lower levels of educational attainment.[10] However, the evidence available suggests that hourly wage differentials between groups are not particularly high compared with other countries.[11]

3.1.2 WAGE INCOME

There is a higher incidence of part-time work among the groups of workers with the lowest hourly wages. When the number of hours worked is included in the analysis of hourly wages, the differences in wage income between individuals increase. As Panel 2 of Table 2 shows, this is because there is a higher incidence of part-time contracts among the groups with the lowest hourly wages. Specifically, the proportion of part-time work is 36.5% among women, 38.6%

10 Similar regressions have been made with annual Spanish Labour Force Survey (EPA) wage data, converted to monthly, for full-time employees, obtaining similar differentials. Specifically, on the EPA figures, the differential would be around 17% for women, 22% for young people compared with older workers, 37% for university graduates compared with workers with only lower secondary education, and 22% for new hires compared with those with more than 10 years' tenure.

11 See H. Simón (2010), "International Differences in Wage Inequality: A New Glance with European Matched Employer-Employee Data", *British Journal of Industrial Relations*, 48(2), pp. 310-346.

CHARACTERISTICS OF WAGE-EARNERS IN SPAIN BY REAL HOURLY WAGE PERCENTILE

TABLE 2

Women, workers with low levels of education, young people and those with limited tenure are to found in the lowest percentiles of the hourly wage distribution. In 2014 the last two groups accounted for a larger percentage of those with the lowest income as a result of the higher incidence of temporary contracts. All four groups also presented a higher incidence of part-time work, although during the crisis short-time working arrangements increased for all workers.

1 DEMOGRAPHICS (a)

	EES 2006					EES 2014				
	% Women	Average age	Education level		Average tenure	% Women	Average age	Education level		Average tenure
			Compulsory	Post-compulsory				Compulsory	Post-compulsory	
P10	65.1	35.3	64.9	35.1	3.2	63.4	38.7	61.6	38.4	4.72
P25	57.5	35.4	66.7	33.3	3.3	61.1	39.2	61.3	38.7	5.11
P50	47.1	35.8	66.3	33.7	3.8	54.6	39.7	59.1	40.9	5.99
P75	43.5	36.7	61.4	38.6	5.0	50.8	40.5	52.3	47.7	7.35
P90	42.1	37.3	56.7	43.3	6.0	49.3	41.0	46.9	53.1	8.30
All	40.9	38.0	52.7	47.3	6.8	48.0	41.5	43.1	56.9	9.05

2 CONTRACTUAL CONDITIONS

	% Part-time work		% Temporary contract		Hours worked, part-time		Hours worked, full-time		Hours worked, total		Days per month not worked (b)	
	2006	2014	2006	2014	2006	2014	2006	2014	2006	2014	2006	2014
Gender												
Female	29.3	36.5	26.5	21.2	100.36	92.26	169.01	168.17	148.89	140.49	9.44	11.54
Male	8.0	14.9	30.0	20.2	93.06	86.44	172.70	171.88	166.33	159.16	7.86	15.04
Age												
16-29	19.6	38.6	44.3	37.9	100.06	86.81	172.68	171.61	158.41	138.87	7.96	15.74
30-44	15.6	23.6	25.7	20.8	100.85	96.03	171.44	170.70	160.41	153.09	8.65	13.09
45-54	15.0	21.7	19.5	14.0	98.42	91.18	170.28	170.06	159.48	152.98	9.11	13.50
55-64	16.9	24.3	17.9	15.7	82.13	75.55	170.40	168.68	155.46	146.02	10.32	10.82
Over 64	34.3	43.6	17.3	19.1	62.73	66.65	168.80	169.03	132.45	124.42	12.11	5.79
Length of tenure												
Less than 1 year	24.0	41.0	76.7	71.4	94.93	80.91	173.03	172.90	154.26	135.16	7.91	19.02
At least 1 year but less than 3 years	20.0	37.4	42.1	41.5	98.69	85.87	172.76	171.82	157.98	139.68	8.55	13.55
At least 3 years but less than 10 years	15.0	25.0	9.8	11.1	102.33	96.14	171.62	170.53	161.21	151.91	9.35	12.29
10 years or more	10.0	14.3	4.9	4.7	94.26	95.07	168.72	169.16	161.29	158.57	9.10	13.03
Education level												
Compulsory	17.7	31.6	33.8	23.7	98.56	89.21	173.46	172.70	160.23	146.30	8.61	12.82
Post-compulsory	15.6	20.4	22.7	18.5	97.95	91.96	169.20	168.84	158.05	153.16	8.72	13.27

SOURCE: Instituto Nacional de Estadística (EES).

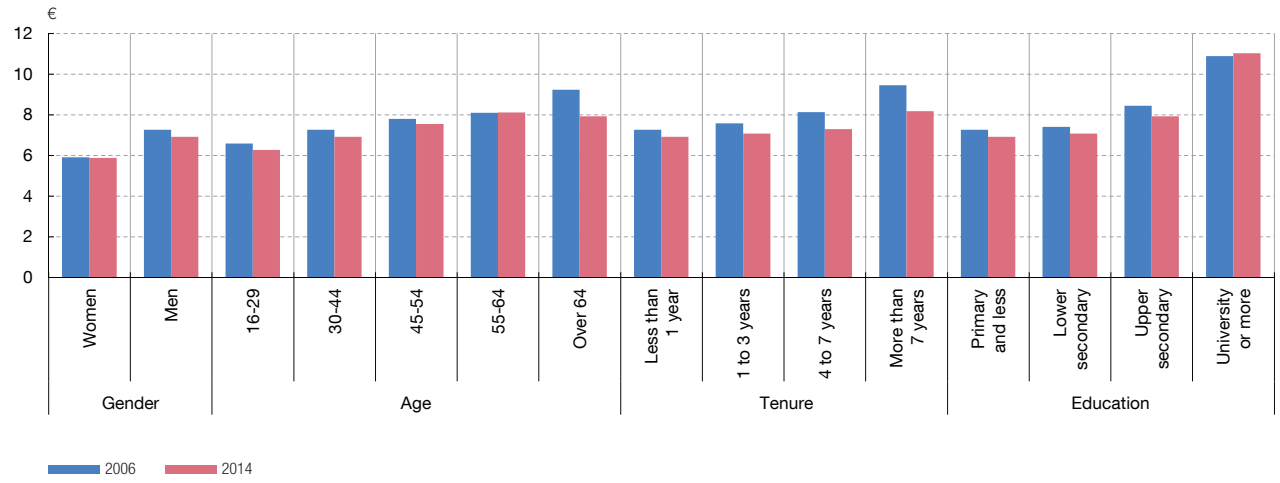
a Each row represents the characteristics of the population below the percentile concerned. For example, P10 refers to the characteristics of the population with wage income below the 10th percentile and P90 to the characteristics of all the population with wage income below the 90th percentile.

b Days per month not worked calculated only for the sample of workers who have not worked the full month. It is the sum of two questions: 1. Were you off work due to illness, maternity or paternity leave, high-risk pregnancy leave or breast-feeding, unpaid leave or a redundancy programme? 2. Were you on strike at any time or temporarily laid off for reasons other than those indicated above?

NO SIGNIFICANT CHANGES IN HOURLY WAGE DIFFERENCES DURING THE CRISIS CHART 2

Taking type of contract into account, there were no significant changes during the crisis in the differences in hourly wages obtained by persons with different characteristics.

REAL HOURLY WAGE (a)



SOURCES: INE (EES) and Banco de España.

a The values are coefficients estimated using a logarithmic regression of real hourly wages on dummy variables for gender, age, education, tenure, firm size, working hours and contract type, for the sample of all wage-earners.

among young people, 32% among workers with lower levels of educational attainment and 41% among new labour market entrants.

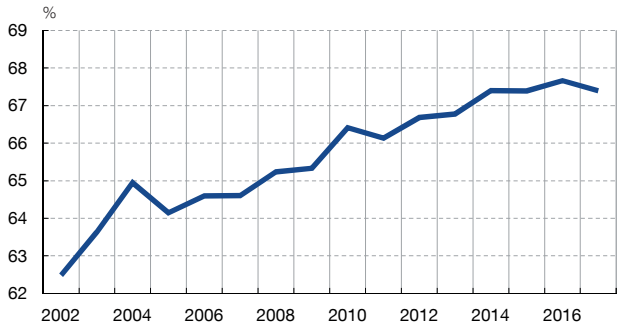
In addition, young workers and new labour market entrants generally interrupt their periods of work more often, as they are more dependent on temporary contracts. When the number of days that different groups of workers are without work are calculated– because they are off work, on unpaid leave or laid off –, there are no substantial differences between men and women or between persons with different levels of educational attainment. However, there are significant differences by age and by tenure. Specifically, according to the Earnings Structure Survey (EES) data, there are up to five days' difference in time actually worked per month between different age groups and between new labour market entrants and all other workers.

In consequence, inequality measures are higher when monthly wage earnings rather than hourly wages are compared. Taking into account the number of hours and days worked in the month, in 2014 the wage income of the ninth decile was 5.6 times higher than that of the first decile whereas, as indicated in the previous section, in terms of hourly wages this ratio was just 3.3 times (see Table 1). This increase in inequality is concentrated at the low end of the distribution. Thus, median wage-earners received 2.5 times more than the first decile in terms of monthly earnings (1.6 in terms of hourly wages), but they continued to receive slightly less than half the level of the ninth decile (2.2 in terms of monthly earnings, 2.1 in terms of hourly wages). Indeed, Spain is one of the countries that shows the largest increase in inequality when wages are analysed monthly rather than hourly, presenting wage income inequality above the median.

DIFFERENT HOUSEHOLD MEMBERS GENERALLY HAVE SIMILAR EDUCATION LEVELS CHART 3

Households are generally formed by persons with a similar education level and employment situation.

1 CORRELATION BETWEEN EDUCATION LEVEL OF COUPLE (a)



2 EMPLOYMENT SITUATION OF THE PARTNER OF A HEAD OF HOUSEHOLD THAT IS IN THE LABOUR FORCE (EMPLOYED OR UNEMPLOYED) (b)

SOURCES: INE (EPA) and Banco de España.

a On EPA data for Q2 of each year. The values are obtained from a regression of the wife's education level on that of her partner, dummy variables for the year and interaction terms between the partner's education level and dummy variables for the year, with the coefficients estimated from the interaction terms.
b On EPA data for 2017 Q2.

In this respect, notable increases in inequality are observed in other countries, such as Germany, the Netherlands, the United Kingdom and Austria, where there is a higher incidence of short-term and short-hour contracts among the groups with the lowest hourly wages.

3.2 Gross household income

The above analysis must be extended to cover other sources of income and all household members. As well as income from wages, individuals receive income from self-employment, capital income, unemployment benefits, pensions and other, mainly public, transfers that must be taken into account to analyse inequality. In addition, people do not generally take decisions in isolation but as members of a household, where different members may receive income and share the use of certain goods. Accordingly, total household income inequality must be considered as well as per capita income inequality. For this purpose, below the EFF data for 2014 on gross per capita income and total household income are analysed, as the overall income of all household members and its characteristics.

In Spain there is a high correlation between the socioeconomic characteristics of adult household members. Specifically, the correlation between the educational attainment level of the head of household and his/her partner verges on 70% in Spain (see Chart 3). This explains, for example, why when one household member is unemployed, there is a relatively high probability that the other household member will also be unemployed. In consequence, households have a relatively limited ability to protect themselves from difficult labour market circumstances affecting one partner via the potential complementarities afforded by the labour market conditions of the other partner.

As a result of this high correlation, the differences observed in individual wage income inequality do not narrow significantly when total household income is considered. One way to

INEQUALITY INDICATORS WITH SEVERAL VARIABLES TABLE 3

Inequality between households can be seen to decrease when sources of income other than wage earnings are included. Moreover, taxes also reduce the level of inequality somewhat when comparing gross and net income. Finally, consumption decisions result in lower inequality in than that observed in income.

	Individual earned income (a)		Household earned income (a)		Gross per capita income		Gross total household income	
	2008	2014	2008	2014	2008	2014	2008	2014
Gini	0.35	0.43	0.36	0.43	0.40	0.40	0.43	0.43
P90/P10	5.64	10.86	5.27	9.99	5.82	6.25	8.21	7.00
P50/P10	2.56	4.29	2.40	3.96	2.35	2.44	3.32	2.73
P75/P25	2.16	3.00	2.41	2.88	2.44	2.61	2.87	2.96
P90/P50	2.20	2.53	2.19	2.52	2.47	2.56	2.48	2.57

	Net per capita income		Net household income		Total per capita consumption		Total consumption	
	2008	2014	2008	2014	2008	2014	2008	2014
Gini	0.38	0.37	0.40	0.39	0.29	0.31	0.33	0.33
P90/P10	5.21	5.71	6.36	6.15	3.64	4.00	4.51	4.42
P50/P10	2.22	2.39	2.80	2.56	1.83	1.92	2.20	2.12
P75/P25	2.37	2.37	2.56	2.66	1.91	1.99	2.31	2.20
P90/P50	2.35	2.38	2.27	2.40	1.98	2.08	2.05	2.08

SOURCE: Banco de España (EFF).

a Wage income figures exclude zeroes.

identify how household formation reduces the differences in household members' individual wage income is by comparing the measures of inequality of individual wage income and household wage income (see the first four columns of Table 3). In cases where households are formed at random, inequality in household income is substantially lower than inequality in individual income. However, in the case of Spain, the measures of inequality of household wage income compared with individual wage income are only slightly lower: specifically, the P90/P10 ratio for individual wage income is 10.9 and the P90/P10 ratio for household wage income is 10.[12]

Regarding the source of income of household members, at the lower end of the per capita income distribution the bulk of income comes from unemployment benefits and employment income (see Panel 1 of Chart 4). At the worst point of the crisis, around 70% of the income of the first decile of the distribution came from unemployment benefits and wage or self-employment income. Pre-crisis, this figure stood at 50% and included a higher proportion of pensions and other public transfers, owing to the better relative position of wage income and the lower unemployment rate (in any event, unemployment benefits accounted for approximately 10% of total income in this decile).

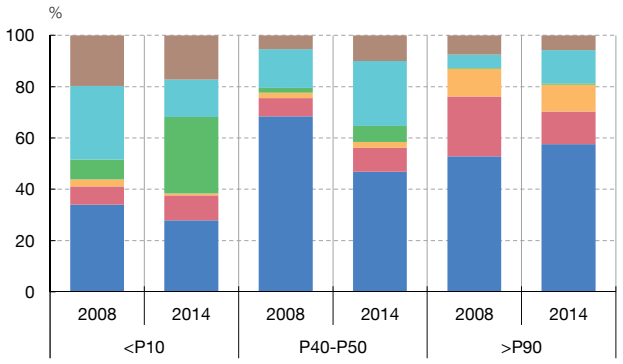
12 Note that individual income inequality is higher in the EFF than in the EES, especially during the crisis, mainly because the EFF sample is representative of all the population (including persons who are employed, unemployed and inactive at the time of the survey), whereas the EES data refer only to persons who had been in work throughout the month of October of the year of reference. In any event, the EES data have been used in the first section on hourly and monthly wages as the EES has much more detailed information on hours worked than the EFF.

SOURCES OF INCOME AND CHARACTERISTICS OF HOUSEHOLDS BY PER CAPITA AND TOTAL HOUSEHOLD INCOME PERCENTILE

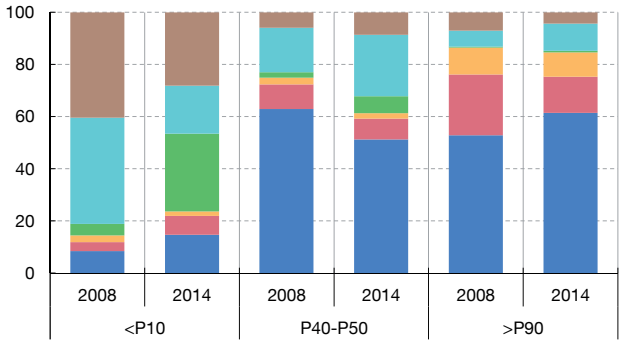
CHART 4

In terms of per capita income, concentrated at the low end of the distribution are households receiving employment income or unemployment benefits, and the level of concentration rose during the crisis. However, in terms of total income, concentrated at the low end of the distribution are households receiving income from pensions.

1 PROPORTION OF INCOME SOURCES BY SELECTED PER CAPITA INCOME PERCENTILE



2 PROPORTION OF INCOME SOURCES BY SELECTED TOTAL HOUSEHOLD INCOME PERCENTILE



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3 HOUSEHOLD CHARACTERISTICS BY PER CAPITA INCOME PERCENTILE

	EFF-2002				EFF-2008				EFF-2014			
	Head of household average age	Household size	Head of household education level		Head of household average age	Household size	Head of household education level		Head of household average age	Household size	Head of household education level	
			Compulsory	Post-compulsory			Compulsory	Post-compulsory			Compulsory	Post-compulsory
P10	58.5	2.6	85.8	14.2	59.5	2.3	84.8	15.2	49.6	2.9	79.5	20.5
P25	58.0	2.6	82.8	17.2	59.6	2.3	84.1	15.9	54.0	2.6	79.2	20.8
P50	56.0	2.8	75.5	24.5	56.5	2.6	76.1	23.9	55.5	2.5	75.8	24.2
P75	54.0	2.8	68.3	31.8	54.1	2.7	68.6	31.4	55.1	2.5	67.5	32.5
P90	53.1	2.8	63.0	37.0	53.3	2.7	63.5	36.5	54.5	2.5	60.8	39.2
All	52.5	2.8	58.7	41.3	52.9	2.7	58.5	41.5	54.6	2.5	55.9	44.1

4 HOUSEHOLD CHARACTERISTICS BY TOTAL HOUSEHOLD INCOME PERCENTILE

	EFF-2002				EFF-2008				EFF-2014			
	Head of household average age	Household size	Head of household education level		Head of household average age	Household size	Head of household education level		Head of household average age	Household size	Head of household education level	
			Compulsory	Post-compulsory			Compulsory	Post-compulsory			Compulsory	Post-compulsory
P10	65.4	1.4	87.6	12.4	67.5	1.4	89.1	10.9	55.6	2.0	78.4	21.6
P25	60.7	1.8	82.3	17.7	63.1	1.7	85.1	14.9	59.7	1.8	82.3	17.8
P50	56.2	2.2	73.5	26.5	57.1	2.2	76.3	23.7	57.2	2.2	76.3	23.7
P75	53.6	2.6	66.5	33.5	54.2	2.4	67.4	32.6	55.7	2.3	66.5	33.5
P90	52.8	2.7	62.3	37.7	53.1	2.6	63.0	37.0	54.8	2.4	60.3	39.7
All	52.5	2.8	58.7	41.3	52.9	2.7	58.5	41.5	54.6	2.5	55.9	44.1

SOURCE: Banco de España (EFF).

As Table 3 shows, the P90/P10 ratio for households' per capita income was 6.3 in 2014. On data from the European Household Finance and Consumption Survey (HFCS)[13] or from the European Survey on Income and Living Conditions (EU-SILC), in that year Spain was one of the euro area countries with the highest per capita income inequality. This is attributable to the higher incidence of unemployment in Spain, which resulted in a high concentration of households collecting unemployment benefits at the low end of the distribution. In addition, the fact that the unemployment rate remained high, even in the most expansionary periods, meant that inequality in gross income per capita before the crisis was also high in Spain by international standards.

Average household size in Spain is relatively large; this mitigates the limited ability to obtain income at the low end of the distribution and permits certain economies of scale in household expenditure. The empirical evidence shows that young peoples' decision to leave the family home is generally very closely linked to their job stability and, where there is a high incidence of short-term contracts, this is generally achieved at a relatively late age.[14] Moreover, the fact that young people are leaving the family home later conditions the age at which they start to have children and the number of children they have. In consequence, Spain is one of the countries where the age of mothers at first birth is highest and the fertility rate is lowest.[15] It is also one of the European countries with the lowest percentage of old people living alone or in institutional households. However, this is linked, at least in part, to the lower educational level of the older generations and, therefore, it will foreseeably change in the future in view of the increase in the level of educational attainment observed since the start of the last century.[16]

The accumulation at the low end of the household income distribution of households with older members that are chiefly supported by pensions may be explained by these household formation characteristics. Panel 2 of Chart 4 shows that, in 2014, more than 50% of incomes in the first decile came from pensions and other, mainly non-employment, transfers. The fact that young people are delaying leaving the family home when they face greater job instability and the high correlation by international standards between current levels of contributory pensions and wages[17] explain why Spain's position in the inequality ranking by country decreases when it is total household income rather than per capita income that is compared.

Self-employment income and capital income play a smaller role in explaining differences in inequality levels. Self-employment income made up 14% of total income of the

13 See Household Finance and Consumption Network (HFCS).

14 See Ll. Matea (2015), *La demanda potencial de vivienda principal*, Banco de España Occasional Paper 1504; C. Barceló and E. Villanueva (2016), "The response of household wealth to the risk of job loss: Evidence from differences in severance payments", *Labour Economics*, 39, pp. 35-54; and C. Barceló and E. Villanueva (2018), "The risk of job loss, household formation and housing demand: evidence from differences in severance payments", mimeo.

15 See A. Adsera (2011), "Where are the babies? Labor market conditions and fertility in Europe", *European Journal of Population*, 21(1), pp. 1-32.

16 Matea (2015) shows that once educational differences across European countries are taken into account, there is no major difference in the percentage of persons reporting to be household heads among the over-35s.

17 See OECD (2017). Pensions at a glance, 2017: OECD and G20 Indicators, Paris, OECD Publishing. In any event, it must be considered that country-by-country comparisons of public contributory pensions do not take into account the part played by other available resources to support living standards in old age and which in some countries are institutionalised under other pillars of the system.

90th percentile and 7% of the 10th percentile. In turn, capital income amounted to 10 pp of total income of the 90th percentile, and then decreased progressively for the lower deciles, down to 2 pp in the first decile.[18] The inequality indicators for market income, which comprises wage income, self-employment income and capital income, are very similar to those observed for wage income.

If imputed income from home ownership is considered, the inequality between Spanish households becomes slightly narrower, in terms of total and per capita income. Indeed, imputing income from home ownership reduces total income inequality.[19] This is because, according to the EFF, 61% of households in the first income decile own their own homes, so their incomes, which are low without the imputed income, increase considerably when it is added.[20] By contrast, in the higher deciles, there is a proportionally lower increase in income when the imputed income is added, showing that the distribution of imputed income from home ownership is considerably more uniform than the distribution of all other income overall. In particular, if imputed income from home ownership is added to total household income, inequality measured by the P90/P10 ratio falls from 6.3 to 5.9 in per capita income and from 7 to 6.7 in total income in 2014.

3.3 Net household income

Not all gross household income is available for consumption. A portion of this income is used to pay taxes, so gross income is not the same as actual income available for consumption or saving. In Spain, as in most developed economies, the direct personal tax system is progressive, which means that those persons who obtain higher income are subject to a proportionally higher level of tax. Thus, once direct taxes are taken into account, income inequality should narrow.

The progressive nature of direct personal taxes reduces inequality. The Spanish tax system's progressivity stems, in particular, from the existence of a non-taxable allowance and rising marginal tax rates in the personal income tax scale. To analyse the role that direct taxation plays in reducing inequality, the personal income tax paid by each household has been estimated by deducting tax liabilities from gross income to give after-tax income.[21] As Table 3 shows, net income inequality is lower than gross income inequality, measured by the Gini index or the income ratio between the first and last decile. Specifically, in accordance with the latter indicator, the ratio is 7 in gross terms and 6.1 in net terms. The results are the same when per capita income is analysed.

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18 In this case it must be considered that not all assets provide income, so that differences in wealth do not necessarily translate into differences in income.

19 See F. Goerlich (2016), *Distribución de la renta, crisis económica y políticas redistributivas*, Bilbao, Fundación BBVA. In any event, imputing income from home ownership is not straightforward. First, the Spanish rental market is very small, so it is not easy to estimate the rental value that should be imputed to each household for the fact of home ownership. Second, as will be seen later, available wealth is a key variable in consumption decisions, but the role it plays depends, among other factors, on the age of the head of household (the older the head of household is, the less determinant it becomes).

20 The EFF does not include information on implicit income from home ownership. However, in order to analyse the change in inequality if this income is taken into account it has been proxied. Specifically, for owner-occupier households, the market rent payable for their home is estimated, according to its current value indicated by the household and the interest rate on housing loans (in the year of the interview), deducting the housing depreciation cost (using a straight-line depreciation coefficient obtained from information supplied by the tax authorities).

21 The parametric function estimates are taken from E. García-Miralles, N. Guner and R. Ramos (2018), "The Spanish Personal Income Tax: Facts and Parametric Estimates", *mimeo*.

Personal income tax in Spain is slightly less progressive than the OECD average. One way to compare the degree of progressivity of different personal income tax systems is by analysing the different tax wedges – the difference between gross and net income – arising from personal income tax and social security contributions for different income brackets. According to OECD data, the difference in tax wedge between persons receiving 167% of their country's average income and those receiving 67% was 7.8 pp in Spain in 2016 compared with 8.1 pp for the average of the OECD countries. Accordingly, direct personal taxation reduces inequality in terms of gross income per capita by slightly less in Spain than on average in the OECD countries.

As in other countries, the redistributive effects of indirect taxation are low. The redistributive nature of a tax system may be determined by differences in the parameters of other taxes in addition to income tax. In the case of indirect taxation (essentially value added tax and excise duties), progressivity is limited.[22] This is not exclusive to the Spanish tax system and is because indirect taxation rates are essentially proportional and do not vary according to income. Thus, according to the European Commission, average effective VAT rates vary only slightly by income deciles in most EU countries.[23]

3.4 Consumption and wealth

The differences observed in household consumption are smaller than those in net income. The level of inequality and the way in which it evolves is often discussed in terms of income. However, from the standpoint of utility or well-being, people's level of consumption may be more relevant. Consumption aggregates the goods an individual enjoys directly. As well as being influenced by individuals' expected income and the uncertainty surrounding that income, the purchase of these goods is also affected by wealth, which also determines potential access to external financing, as well as the point in the life cycle of the members of the household, and their access to public or subsidised goods.[24] In this regard, total consumption and per capita consumption show less inequality between households than net income. For example, the P90/P10 ratio for total consumption is 4, compared with 6.2 for total net income (see Table 3). This happens at all levels of the income distribution, irrespective of whether income is measured in total or per capita terms and of the point in the economic cycle.

The smaller inequality in consumption observed partly reflects the high mobility of income at the ends of the distribution, despite the strong persistence of differences in the income distribution. The expected course of future income is a fundamental factor in explaining consumption decisions. For its part, households' expectations about their future income largely depend on how their income and that of their social reference group have developed in the past.[25]

22 See O. Bover, J. M. Casado, E. García-Miralles, R. Ramos and J. M. Labeaga (2017), "Microsimulation tools for the evaluation of fiscal policy reforms at the Banco de España", Banco de España Occasional Paper 1707.

23 Institute for Fiscal Studies, (2011). Quantitative analysis of VAT rate structures in A retrospective evaluation of elements of the EU VAT system, No 0039, Taxation Studies, Directorate General Taxation and Customs Union, European Commission-ed.

24 O. Attanasio and L. Pistaferri (2016). "Consumption Inequality", Journal of Economic Perspectives, 2(3), pp. 3-28.

25 For evidence of the influence of the social reference group on consumption decisions in Spain, see Banco de España Analytical Article "The role of the social environment in household consumption decisions in Spain" J. Casado, (2018). Economic Bulletin 1/2018.

LIMITED INCOME PERSISTENCE FOR HOUSEHOLDS IN THE UPPER PART OF THE DISTRIBUTION IN RESPONSE TO ADVERSE SHOCKS AND FOR HOUSEHOLDS IN THE LOWER PART OF THE DISTRIBUTION IN RESPONSE TO POSITIVE SHOCKS (a) TABLE 4

How income develops over time depends on the individual's situation and the sign and size of the shock. Specifically, it can be seen that lower income households that experience a powerful positive shock improve their situation and higher-income households that receive a powerful negative shock suffer a deterioration in their situation. A number close to 1 means that households maintain their level of income, while the smaller the number, the bigger the change in their situation.

		Shock percentile						
		5	10	20	50	80	90	95
Income percentile in the preceding period	5	1.09	0.95	0.80	0.58	0.32	0.19	0.08
	10	0.98	0.89	0.79	0.65	0.41	0.28	0.22
	20	0.85	0.80	0.75	0.70	0.50	0.39	0.37
	50	0.68	0.65	0.66	0.73	0.60	0.54	0.57
	80	0.49	0.46	0.51	0.73	0.69	0.72	0.77
	90	0.37	0.34	0.41	0.71	0.73	0.82	0.89
	95	0.25	0.20	0.27	0.68	0.77	0.93	1.00

SOURCE: Banco de España.

a Estimates of the derivative with respect to income in t-1 of a flexible income percentile function in t, given the income in t-1 and age in t, evaluated based on the value of average age for varying sizes of shock. See H. Basso *et al.* (2017).

Thus, in any economy where mobility up and down along the income distribution is very limited, levels of inequality will be highly persistent. In the case of Spain, using EFF data, it is found that 58% of households with a low relative income in 2011 (measured as the 20% lowest incomes) remained at this level in 2014, whereas the remaining 42% improved their relative position.[26] Meanwhile, a household's future income depends both on the current level of income and any shocks affecting it. In this regard, according to the evidence shown in Table 4, in the face of negative shocks, the situation of households in the upper part of the distribution tends to deteriorate sharply, to a much greater extent than in the case of households in the lower part of the distribution. This asymmetry is relevant when analysing how different households form their income expectations and how these expectations affect consumption and spending. Specifically, given the effects of adverse shocks on them, higher income households tend to raise their saving rate. The opposite happens in the case of lower-income households, whose situation improves significantly in the event of positive income shocks. These dynamics cause significant revenue movements at the ends of the distribution,[27] which is consistent with the evidence that income inequality exceeds consumption inequality.

The way in which a household's consumption changes in response to fluctuations in income also depends on its level of wealth and, to a lesser extent, the age of its members. The wealthiest households are better able to maintain their level of consumption in the face of falling income, given that they may have assets or easier access to borrowing. Therefore, for these families, consumption will depend to a lesser extent on income than in other households, at

26 There is a scarcity of comparable data at international level on mobility over time. From the HFCS data for Germany, it was possible to verify greater mobility in Spain, as over the same period 72.5% of the German population in the lowest 20% of the income distribution remained in this situation in 2014.

27 For the United States and Norway, see M. Arellano, R. Blundell and S. Bonhomme (2015): "Earnings and Consumption Dynamics: A Nonlinear Panel Data Framework", Econometrica, 85 (3), pp. 693-734, and for Spain, see H. Basso, O. Bover, J.M. Casado and L. Hospido (2017)." Household income uncertainty, consumption and wealth: Non-linear patterns in the Spanish Survey of Household Finances", mimeo.

HIGH ELASTICITY OF CONSUMPTION TO CHANGES IN INCOME AMONG YOUNGER HOUSEHOLDS WITH LESS WEALTH (a) **TABLE 5**

Wealth cushions the effect of income shocks on consumption, particularly among young people. For example, the value in the table for a 30-year-old in the 5th wealth percentile is interpreted as meaning that a 1% drop in income produces a 0.52% drop in consumption.

		Age							
		30	35	40	45	50	55	60	65
Wealth percentile	5	0.52 (0.370.64)	0.49 (0.37;0.58)	0.45 (0.37;0.53)	0.42 (0.35;0.49)	0.39 (0.33;0.46)	0.36 (0.28;0.44)	0.33 (0.23;0.44)	0.30 (0.17;0.43)
	10	0.46 (0.34;0.55)	0.43 (0.35;0.51)	0.41 (0.35;0.48)	0.39 (0.34;0.44)	0.37 (0.32;0.42)	0.35 (0.29;0.41)	0.33 (0.26;0.41)	0.31 (0.22;0.41)
	20	0.41 (0.31;0.49)	0.39 (0.32;0.46)	0.38 (0.32;0.44)	0.37 (0.32;0.41)	0.36 (0.32;0.40)	0.34 (0.30;0.39)	0.33 (0.27;0.39)	0.32 (0.25;0.40)
	50	0.33 (0.25;0.41)	0.33 (0.27;0.39)	0.33 (0.28;0.38)	0.33 (0.29;0.36)	0.33 (0.30;0.36)	0.33 (0.29;0.36)	0.33 (0.28;0.37)	0.33 (0.27;0.38)
	80	0.25 (0.18;0.34)	0.26 (0.20;0.33)	0.27 (0.22;0.33)	0.28 (0.24;0.33)	0.30 (0.26;0.33)	0.31 (0.26;0.35)	0.32 (0.25;0.37)	0.33 (0.24;0.39)
	90	0.19 (0.11;0.32)	0.21 (0.15;0.31)	0.23 (0.18;0.30)	0.26 (0.21;0.31)	0.28 (0.22;0.32)	0.30 (0.22;0.34)	0.32 (0.21;0.37)	0.34 (0.20;0.40)
	95	0.14 (0.03;0.31)	0.17 (0.08;0.29)	0.19 (0.12;0.28)	0.22 (0.16;0.29)	0.25 (0.18;0.31)	0.28 (0.18;0.33)	0.31 (0.17;0.36)	0.34 (0.15;0.41)

SOURCE: Banco de España.

a Estimates of elasticity of consumption to changes in income for households with different levels of net wealth and of different ages. The numbers in brackets represent 90% confidence intervals.

least up to a certain age. Thus, it has been observed that in households headed by a person under 55 years, the availability of more wealth allows for more stable consumption, whereas in households headed by a person over 55, wealth barely plays any role in consumption stabilising. In effect, as Table 5 shows, the change in average household consumption in response to changes in income is smaller in wealthier families whose head of household is aged under 55. Specifically, among households with little relative wealth (at the 5th percentile) and a 30-year-old head of household, a 1% decrease in income causes a 0.5% drop in consumption, whereas this decrease is smaller (0.1%) among wealthier households (at the 95th percentile). However, in households aged over 55 years, the drop in consumption in response to a drop in income of 1% is always around 0.3%, regardless of the level of wealth.

Certain public services, such as health and education, have a significant redistributive effect. There is empirical evidence using various methodological approaches and applying criteria to impute to households the value of public services provided by general government that shows that these services have a significant redistributive effect.[28] In the case of education, for instance, this is particularly true for preschool and primary education, as well as for compulsory secondary education, while the effects are less clear in the case of higher education.[29]

28 See F. Goerlich (2016).

29 In any event, in order to analyse the individual benefits deriving from the public provision of a particular good it is necessary to know what income group spends most on that good as a percentage of its total spending. Those households that spend a larger percentage of their income on the subsidised good will benefit most from the introduction of a subsidy that does not take factors such as the income level into account. In this regard, for example, a subsidy on university education that is not proportional to household income would disproportionately benefit the wealthiest households as their spending on this type of education is higher.

Wealth inequality greatly exceeds income inequality. Specifically, the wealth ratio in the eighth decile with respect to the second is 15.5[30] and the Gini index is 0.68, much higher than observed in other variables analysed previously. Similarly, the wealthiest 1% own 20% of all wealth and the wealthiest decile holds 52.7% of total wealth.

Income dynamics at least partly explain the greater accumulation of wealth by high-income households. It should be borne in mind that wealth accumulates year after year, such that differences in wealth increase over time among those households that maintain their relative income positions. Moreover, as already mentioned, faced with the risk of a negative shock causing a significant reduction in their income, higher-income households tend to increase their savings, which is an additional explanatory factor in the dynamics of wealth inequality.[31]

Differences in wealth inequality derive not only from different saving habits, but also from differences in the composition of households' asset portfolios and the performance of their prices. Ownership of assets is widespread, even among low-income brackets. Specifically, 94.3% of households in the first two income deciles own some kind of asset. However, the composition of these assets varies significantly with household income. Thus, in the first two deciles, 89.5% of total assets are associated with real estate property, whereas this percentage drops to 57.5% in the last decile. The main asset types held by this latter segment related to self-employed business (15% total assets), and certain financial assets, such as shares and participating interests, which represent 11.2% of total assets. If prices of these assets perform better than those of real estate assets, this would tend to increase wealth inequality, and vice versa. Recent economic literature has emphasised the heterogeneity of access to different assets and their returns to explain the fact that wealth is more concentrated than income.[32]

In any event, unlike the case of income or consumption, the level of wealth inequality in Spain is lower than that in comparable countries. In comparative terms, again using information from the HFCS, it is observed that, despite the large differences in household incomes by international standards, Spain has a smaller wealth inequality (see Box 1), which may be related to the fact that there is a widespread concentration of saving in real-estate assets, even among higher-income households.

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30 As financial and non-financial assets are much more concentrated than employment income, with a lot of people having no gross wealth or even negative net wealth (debt), wealth inequality is usually analysed using concentration indices and percentile ratios that do not include information for the first decile.

31 This behaviour also has significant implications in terms of optimal fiscal policy, which is something that the economic literature is beginning to analyse. See Basso et al (2017) and N. Guner, and E. E.Yavuz (2017). Taxes and Transfers with Nonlinear Productivity Processes. *Working Paper, CEMFI*.

32 See X. Gabaix, J-M.Lasry, P-L. Lions and B. Moll, (2016). "The Dynamics of Inequality", Econometrica 84, pp.2071-2111 or A. Fagereng, L.Guiso, D. Malacrino, and L.Pistaferri (2016). "Heterogeneity in Returns to Wealth, and the Measurement of Wealth Inequality", American Economic Review Papers and Proceedings, 106 (5), pp 651-655.

4 Trends in inequality during the crisis

Unlike other advanced economies, Spain has not witnessed a sustained rise in inequality in wage earnings, income or wealth over recent decades. In particular, when wage income, household income and wealth are studied over the period from the mid-1980s to 2008 a decrease in inequality is even apparent.[33]

However, the evolution in wage earnings and income inequality in Spain is highly countercyclical. Particularly in the lower part of the distribution, wage earnings and income dropped considerably during downturns and rose during economic booms.[34] In what follows, the way in which inequality between Spanish households, in terms of their income, consumption and wealth, has varied over the course of the recent crisis is analysed. The analysis focuses in particular on the mechanisms driving up inequality in wage income and wealth, and on the various economic decisions and economic policy instruments that cushioned the increase in inequality during this period. Box 2 describes how inequality in wage earnings, total income and gross and net per capita income has changed in the first few years of the recovery.

4.1 Individual wage income

Inequality in terms of hourly earnings remained fairly stable during the crisis, although there was a marked rise in the inequality in total wage earnings. Hourly earnings and full time workers' monthly earnings were relatively stable during the crisis across the whole distribution. However, when part-time employees are taken into account and the analysis period is extended, the increment in wage inequality between 2006 and 2014 becomes significant. Specifically, based on information from the Structure of Earnings Survey (EES) and the Continuous Sample of Working Histories (MCVL), over the period, real wages dropped in the 10th percentile by 30%, by 10% for the median and by 5% in the upper part of the distribution (see Chart 5). Consequently, inequality indicators remained unchanged in the case of hourly earnings, while they grew considerably, particularly in the lower part of the distribution, in the case of total wage earnings (see Table 3).

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33 F. J. Goerlich and M. Mas (1999), *Medición de la desigualdad: contribución a una base de datos regional. IVIE Working Papers* documents a decrease in inequality in household and per capita incomes in Spain between the mid-1970s and the early 1990s based on data from the Household Expenditure Survey (EPF), while J. Pijoan and V. Sánchez-Marcos (2010)."Spain is different: falling trends of inequality". Review of Economic Dynamics, 13 (1), pp.154–178 confirm a drop in inequality in wage earnings and household incomes between 1985 and 2000, based on EPF data and the EU households panel. For their part S. Bonhomme, and L. Hospido (2017), "The Cycle of Earnings Inequality: Evidence from Spanish Social Security Data", Economic Journal, 127(603), pp. 1244–1278 analyse the drop in inequality in earned income between 1988 and 2007, while M. Arellano and O. Bover (2013), in "La renta de los hogares españoles en el preludio de la crisis", in M. Lucena and R. Repullo (eds.): *Ensayos sobre Economía y Política Económica: Homenaje a Julio Segura*, find a slight increase in household income inequality between 2000 and 2008 at the bottom end of the distribution and a decrease at the top end. Stability in terms of wealth has been documented in C. Martínez Toledano (2017). "Housing Bubbles, Offshore Assets and Wealth Inequality in Spain", mimeo.

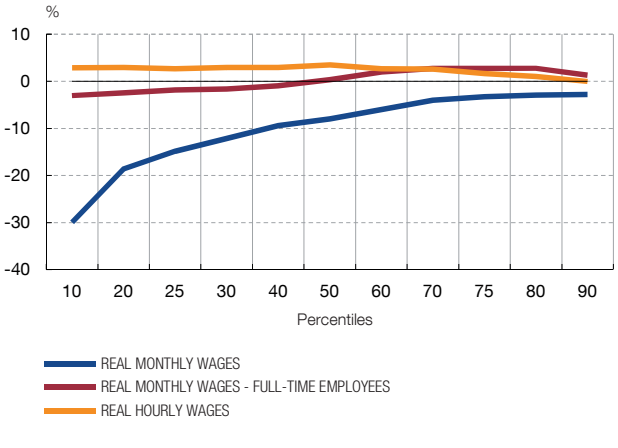
34 See Pijoan and Sánchez Marcos (2010), Bonhomme and Hospido (2017) or M. Izquierdo and A. Lacuesta (2012)."The contribution of changes in employment composition and relative returns to the evolution of wage inequality: the case of Spain", Journal of Population Economics, 25, pp. 511–543, and R. Carrasco, J. F. Jimeno and C. Ortega (2015) "Returns to skills and the distribution of wages: Spain 1995–2010", Oxford Bulletin of Economics and Statistics, 77 (4), pp. 542-565.

WAGE INEQUALITY INCREASED BETWEEN 2006 AND 2014 WHEN HOURS WORKED ARE TAKEN INTO ACCOUNT

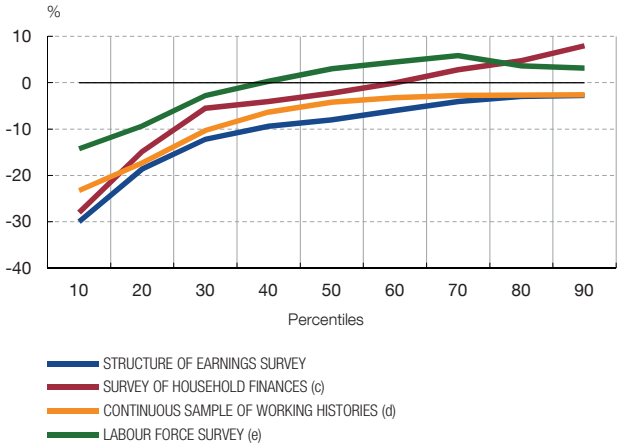
CHART 5

The reduction in hours worked by workers with fewer resources considerably increased the inequality in wage earnings.

1 CHANGE IN REAL MONTHLY AND HOURLY WAGES BETWEEN 2006 AND 2014 (a)



2 CHANGE IN REAL MONTHLY WAGES BETWEEN 2006 AND 2014 (b)



SOURCES: See notes.

a SOURCE: National Statistics Institute (EES).
b SOURCES: National Statistics Institute (EES, EPA), Banco de España (EFF) and Ministry of Employment and Social Security (MCVL).
c Monthly wages calculated from annual wages for individuals in work at the time of the interview in the same sectors of activity as the EES.
d Monthly wages calculated from fiscal module for workers working the whole week.
e Monthly wages associated with main employment in the survey reference week.

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The key factor underlying developments in earned income during the crisis was the strong job destruction, which particularly affected less qualified young people with less seniority. The economic crisis caused considerable job destruction, primarily affecting workers on temporary contracts. Given that this type of contract is more widespread among young people and lower-qualified workers with low tenure, these groups were hardest hit by job losses. Thus, as Table 6 shows, between 2006 and 2014, job destruction profoundly changed the employee composition. The most significant changes were apparent in the distribution by age, studies and seniority, with a drop of around 14 pp in the share of workers aged under 30, around 13 pp in that of workers with an educational attainment of less than post-compulsory secondary education, and 21 pp in that of employees with fewer than three years of tenure in the company. These groups were generally in the lower part of the wage distribution.

Moreover, the drop in the number of hours worked during the crisis was concentrated in the lower-wage groups. The number of hours worked decreased during the crisis, mainly because there were more workers on shorter working hours, but also as a result of their shorter average day and the increase in the number of days without work. The rise in part-time work particularly affected less qualified junior employees aged under 30, among whom the rate of part-time work rose by almost 20 pp, irrespective of gender. As a result, the drop in the number of hours worked between 2006 and 2014 was particularly marked in the lower part of the wage distribution (see Chart 6). Constraints on companies' ability to change working

THE CRISIS LED TO SIGNIFICANT CHANGES IN THE CHARACTERISTICS OF EMPLOYEES TABLE 6

Job losses changed the composition of the employed population, considerably reducing the percentage of young people, low-skilled workers and relatively junior employees. These workers are generally in the lower part of the distribution and have more uniform wages, such that these changes contributed to a slight increase in inequality of hourly earnings among people in employment in the lower part of the distribution.

	Age			Education		Tenure	
	16-29	30-45	Over 45	Compulsory	Post-compulsory	0-3 years	Over 4 years
Proportion (%)							
2006	24.82	48.75	26.42	52.12	47.88	50.62	49.38
2014	10.74	52.99	36.27	39.46	60.54	29.87	70.13
Relative wage (a)							
2006	0.968	0.996	0.989	0.974	1.014	0.975	1.011
2014	0.953	0.987	0.998	0.961	1.007	0.962	1.000
Intra-group inequality (Gini index)							
2006	0.200	0.280	0.308	0.214	0.305	0.237	0.295
2014	0.204	0.268	0.294	0.208	0.285	0.252	0.276

SOURCE: National Statistics Institute (EES).

a The relative wage is the ratio between a group's average monthly wage and the average monthly wage of the whole population.

conditions in sector-wide agreements prior to the labour-market reform of 2012 meant the bulk of the adjustment requirement fell on jobs and hours worked.[35]

Between 2006 and 2014 there was a slight reduction in wage differentials in terms of age and seniority. This wage compression is probably linked to a greater concentration of workers' wages near the minimum levels set in collective bargaining agreements,[36] which is consistent with a drop in extraordinary payments to those workers earning more than stipulated in the collective bargaining agreement.[37] The use of the option introduced by the 2012 labour-market reform to unilaterally amend contracts could also explain this wage compression.

4.2 Gross household income

The way household income per capita developed during the crisis was largely driven by job losses and the replacement of wages by unemployment benefits. As a consequence of the crisis, and mainly as a result of many young people losing their jobs, the lower part of the per capita income distribution included a larger share of unemployed people who lost their wage income and started receiving unemployment benefits. Thus, the youngest and largest households, those with the largest share of their income from work, and above all from unemployment benefits, joined the 10th percentile of the per capita income distribution. Income deriving from unemployment benefits in this percentile, which had been just 8% of

35 See B. Anghel and M. Izquierdo (2018), "Desigualdad salarial a lo largo de la crisis: Análisis de las diferencias entre e intra-empresas", mimeo.

36 See L. Díez and E. Villanueva (2014), *Working Paper No. 1431, Banco de España. Contract staggering and unemployment during the Great Recession: Evidence from Spain*

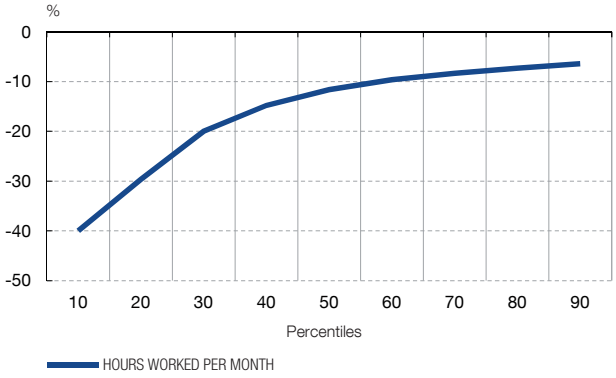
37 See J. Babecký, P. Du Caju, T. Kosma, M. Lawless, J. Messina and T.Rõõm (2012) "How do European firms adjust their labour costs when nominal wages are rigid?", Labour Economics, 19(5), pp. 792-801.

THE NUMBER OF HOURS WORKED FELL DURING THE CRISIS, PARTICULARLY AMONG LOWER-INCOME GROUPS

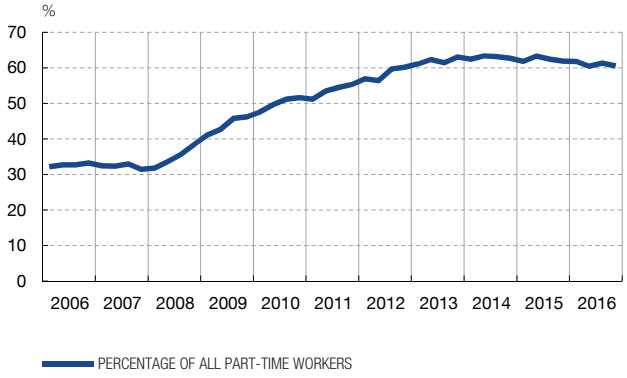
CHART 6

The number of hours actually worked fell across the board during the crisis, but the decline was particularly marked in lower-income groups. The percentage of workers wanting to work more hours has not decreased, despite the incipient recovery.

1 RELATIVE CHANGE IN HOURS WORKED BETWEEN 2006 AND 2014 BY EARNINGS PERCENTILE (a)



2 PART-TIME WORKERS WANTING TO WORK FULL TIME



SOURCE: National Statistics Institute (EES, EPA).

a Annual gross earnings percentiles, deflated by the CPI. The average number of hours corresponds to October, which is the EES reference month.

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per capita income before the crisis, rose to 30% in 2014, highlighting the importance of these benefits as an insurance mechanism. To illustrate this, the first panel of Chart 7 shows the results of a simulation exercise in which the income of individuals receiving unemployment benefits was replaced by zero. This simulation shows that unemployment benefits managed to narrow the increase in market income inequality by a third between 2008 and 2014 compared to a situation in which they did not exist.

Strong job destruction during the crisis caused a rise in inequality, but this was smaller in the lower part of the distribution largely thanks to public subsidies and benefits. Household per capita income also dropped across the board, and, as in the case of earned income, households with lower per capita incomes suffered the biggest drop (see panel 1 of Chart 8). Thus, 20% of households with lower per capita incomes suffered losses of over 15%, while the intermediate percentiles saw reductions of close to 10% and the upper percentiles a drop close to 5%. As mentioned, to understand how the lower part of the per capita income distribution has performed compared to wage income, the fraction of households receiving pension income needs to be taken into account, as pensions performed more favourably during the crisis (second panel of Chart 7). The per capita income inequality in P90/P10 rose from 5.8 to 6.3, i.e. less than the rise in individual wage earnings.

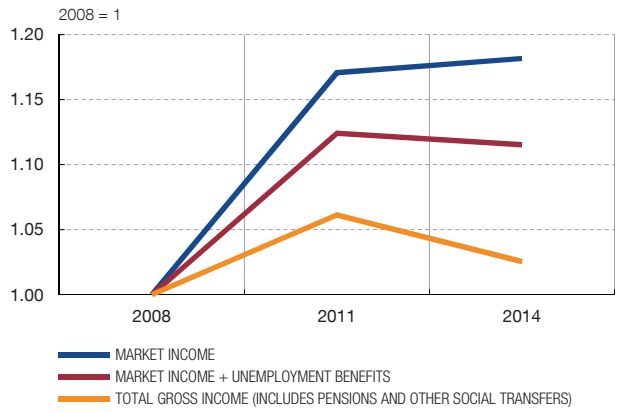
The deterioration in the labour market during the crisis led to a rise in the participation rate among household members not previously in the labour force. In effect, when one of the members of the household was made unemployed, other members not previously participating in the labour market tended to start looking for work. This mechanism led to an increase in the female labour force participation rate in the early years of the crisis, with couples registering as unemployed together. However, most of the people who joined the labour force were unable

REAL INSURANCE MECHANISMS AVAILABLE TO HOUSEHOLDS

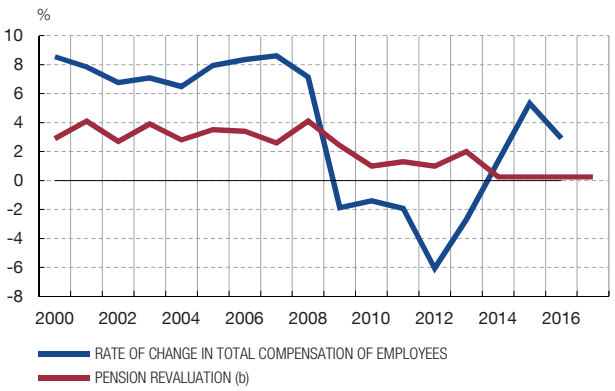
CHART 7

Unemployment benefits, pension stability and young people delaying setting up home helped limit the increase in inequality in total income.

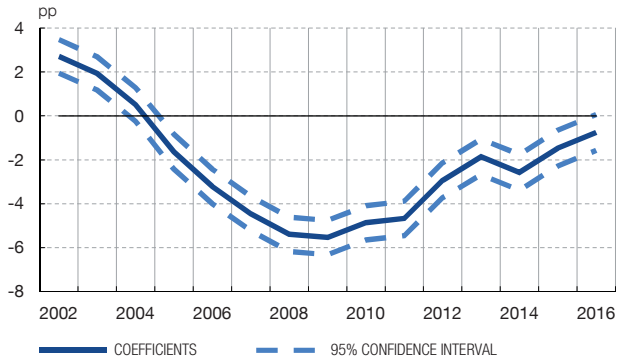
1 PER CAPITA INCOME GINI INDEX (a)



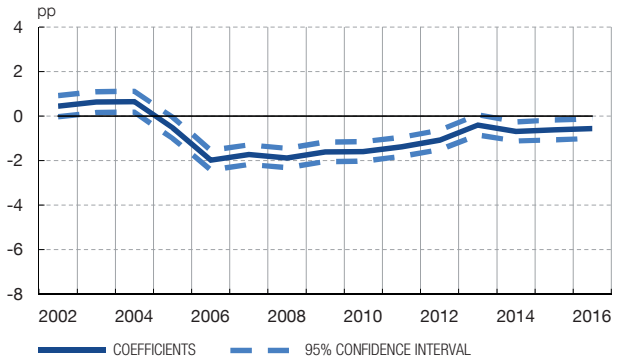
2 RATE OF CHANGE OF TOTAL COMPENSATION OF EMPLOYEES AND OF PENSIONS



3 CHANGES IN THE PROBABILITY THAT AN INDIVIDUAL AGED 18-35 LIVES WITH HIS/HER PARENTS (c)



4 CHANGES IN THE PROBABILITY THAT AN INDIVIDUAL AGED 35-49 LIVES WITH HIS/HER PARENTS (c)



SOURCES: Social Security, National Statistics Institute (EPA) and Banco de España (EFF)

a Household income adjusted using OECD equivalence scale.
b Pension revaluation including safeguard clause from previous year.
c Dummy variable year coefficients for regression of probability that an individual in the indicated age group lives with his/her parents, controlled by gender, age and educational level. Reference year 2017. EPA data for second quarter of each year.

to find work. In this regard, as already discussed, the high correlation between both partners' socioeconomic characteristics meant that the negative conditions faced by one tended to be similar to those faced by the other.[38]

Meanwhile, certain changes took place in the formation of households that helped offset falling incomes in the lower part of the per capita income distribution. There are various ways in which household formation and composition can change to increase income, reduce expenditure or benefit from economies of scale. In particular, household members in the workforce may choose to migrate abroad or households including women of childbearing age may change

38 See J. Dolado, C. García-Peñalosa and L. Tarasonis (2017) "The Changing Nature of Gender Selection into Employment: Europe over the Great Recession", mimeo and B. Anghel, A. Lacuesta and J.M. Montero (2018) "Household Formation delay as an insurance mechanism for unemployment shocks" mimeo.

their plans to have children. Additionally, young people who have finished their education and are making the transition to working life may decide to postpone setting up home, while adults with family members on more stable incomes may decide to form a household together.

A marked drop in the birth rate has been observed since 2008, starting to recover slightly only in 2014. According to the INE, the number of births in Spain, which was already low by international standards, dropped from 44.7 children per thousand women of childbearing age to 39.1. The biggest drop in the fertility rate was in households in the percentile below the median per capita income, remaining constant in the higher percentiles, suggesting that this mechanism helped adjust spending for some low-income households.[39]

An increase in emigration abroad by some or all members of households of foreign nationality was observed as well. Thus, outflows of foreign nationals rose from 250,000 in 2008 to its maximum of 450,000 in 2013, such that the percentage of foreigners in the population declined from 11.1% in January 2008 to 9.5% in January 2017. Emigration also rose among the Spanish population, increasing from 30,000 individuals in 2008 to 95,000 at the height of the crisis. Emigration by the Spanish population was concentrated in the better qualified segments, meaning that emigration was not an option for younger Spanish households or those with lower qualifications seeking to improve their income.[40]

In parallel, young people delayed setting up home, breaking the previous trend. As panel 3 of Chart 7 shows, the probability of young people aged 18 to 35 living with their parents had decreased since 2002. However, as of 2008 this downward trend was reversed, with a return to values similar to those of 2005. In particular, the change in trend was more pronounced among unemployed young people and those without university qualifications.

Finally, there was a very slight tendency for some families to consolidate the household so that some families could benefit from the greater stability of their parents' pensions. Between 2008 and 2014 there was a modest increase in the proportion of adults over 35 living with their parents, although the increase was strongest among unemployed adults (see panel 4 of Chart 7).

Given these developments, the change in total household income in the lower percentiles was primarily driven by changes in pensions. As discussed in Section 3.2, a typical household in the lower part of the total income distribution is mainly supported by income from retirement pensions and other transfers, such as survivors' pensions. In this connection, average pensions progressed much more favourably than wage income over the course of the crisis (see panel 2 of Chart 7).

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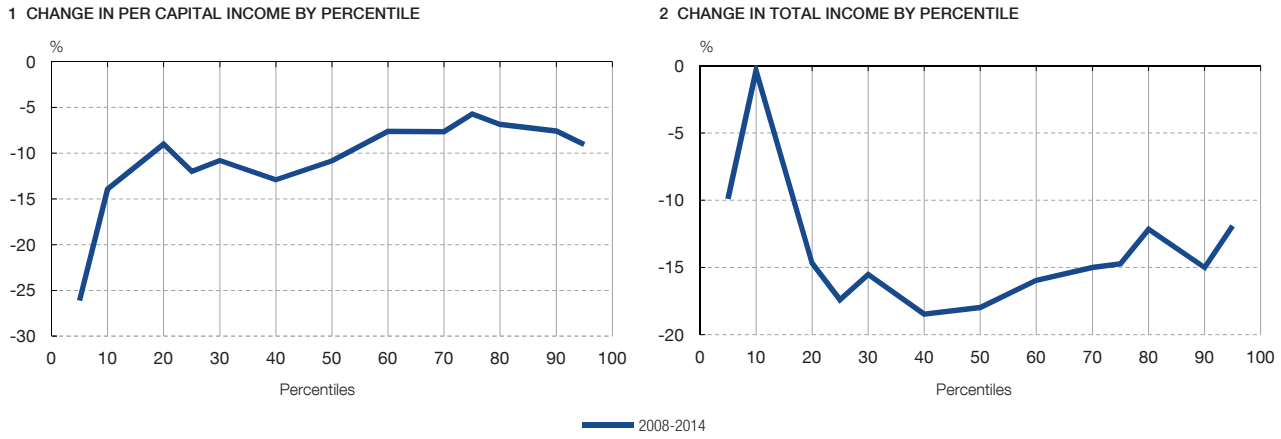
39 The INE does not provide information about the socioeconomic characteristics of women who have had children, although it is possible to calculate the approximate fertility rate from the number of children less than one year old in households that include women of childbearing age from the EFF in order to analyse how this rate varies across household per capita income percentiles.

40 See M. Izquierdo, J.F. Jimeno and A. Lacuesta (2017), "Spain: from massive immigration to vast emigration?", IZA Journal of Migration, 5(10).

INCREASE IN INEQUALITY IN PER CAPITA INCOME AND DROP IN TOTAL INCOME CHART 8

In terms of per capita income, unemployment and shorter working hours caused an increase in inequality. Unlike employment earnings, pensions were the source of income enabling a reduction in total household income inequality.



SOURCE: Banco de España (EFF).

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Thus, the smaller relative weight of wage income for lower-income households reduced total income inequality. As panel 2 of Chart 8 shows, total income fell across the board, but unlike the case of individual wage income discussed above, lower-income households' income performed better than that of households in higher percentiles. Specifically, percentiles below 20% suffered a drop of less than 10%, and in some cases almost no drop at all, while those in higher percentiles, which were more dependent on developments in wage income, saw their total income fall by at least 15%. Total household income inequality dropped from 8.2 to 7 on the P90/P10 indicator.

4.3 Net household income

Net household income fell by somewhat more than gross income among higher-income families between 2008 and 2014, given the fact that personal income tax was made more progressive during this period. As can be seen in Chart 9, this change mainly reflects the effect of modifications to personal income tax, mainly starting in 2012 with a considerable rise in marginal rates, particularly affecting the upper segment of the income distribution.[41] The second panel of Chart 9 shows estimated personal income tax for households in 2007 and 2013, indicating bigger growth in this period in the average rate paid by higher-income taxpayers, with a minor or negligible change for taxpayers in the lower part of the income distribution. As a consequence, the inequality of the distribution increased somewhat less in terms of net income than gross income.[42]

41 For example, the marginal rate on the general tax base increased between 4 and 7 pp for taxpayers earning more than €53,407.2, while it rose by up to 3 pp for taxpayers on lower incomes.

42 During this period the most significant changes to indirect taxation were an increase in the general VAT rate from 16% to 21% and the lower rate from 7% to 10%. These changes were mainly intended to increase tax collection, with changes in the composition of this tax being marginal, such that the redistributive potential from the measures was minimal.

PERSONAL INCOME TAX BECAME SLIGHTLY MORE PROGRESSIVE OVER THE COURSE OF THE CRISIS CHART 9

In net terms, incomes in the upper part of the income distribution performed worse than in gross terms, as direct taxes on the upper deciles increased.

1 CHANGE IN GROSS AND NET INCOME BY PERCENTILE, 2008-2014 (a)

2 ESTIMATE OF EFFECTIVE AVERAGE INCOME TAX RATE (b)

SOURCES: See notes.

a SOURCE: Banco de España (EFF).
b SOURCE: E. García-Miralles, N. Guner, and R. Ramos (2018): "The Spanish Personal Income Tax: Facts and Parametric Estimates," mimeo.

4.4 Consumption and wealth

Inequality in both per capita consumption and income increased during the crisis. Per capita consumption suffered an across-the-board decrease qualitatively similar to that in per capita income across the whole distribution. The losses were most significant in the percentiles below 20% with drops in per capita consumption of almost 15%. Households in the 80th percentile and above registered losses of approximately 5%, whereas the intermediate percentiles were situated close to 10%. Overall, per capita consumption inequality rose across the whole distribution, as it did in the case of per capita income.

The biggest changes in consumption were in durable goods for households with lower per capita consumption. One mechanism households can use to insure against negative shocks is to delay the purchase of durable goods such as cars or household equipment. In Panel 2 of Chart 10 shows how, during the crisis, in the lowest percentiles of per capita consumption, the drop in total consumption of goods exceeded that observed for non-durable consumption.

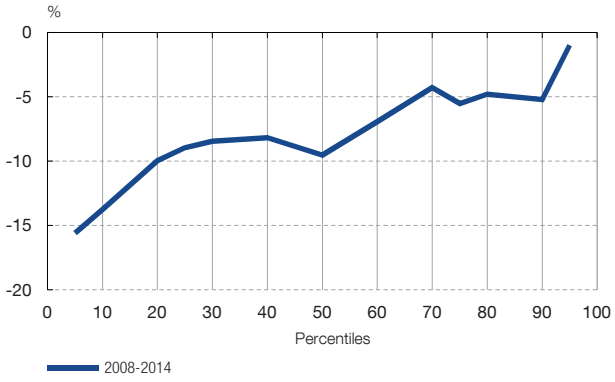
Meanwhile, developments in total income passed through to total consumption, albeit dampened, cushioning changes in levels of inequality in terms of consumption spending. Specifically, as shown in Panel 3 of Chart 10, households in the percentiles below 20% of consumption spending suffered a decline in consumption of up to 10%, while households close to and above the median suffered a reduction of up to 14%. The inequality in total consumption dropped slightly in the lower part of the consumption distribution, while remaining virtually unchanged above the median.

CHANGE IN CONSUMPTION BY PERCENTILE AND TYPE OF GOODS CONSUMED

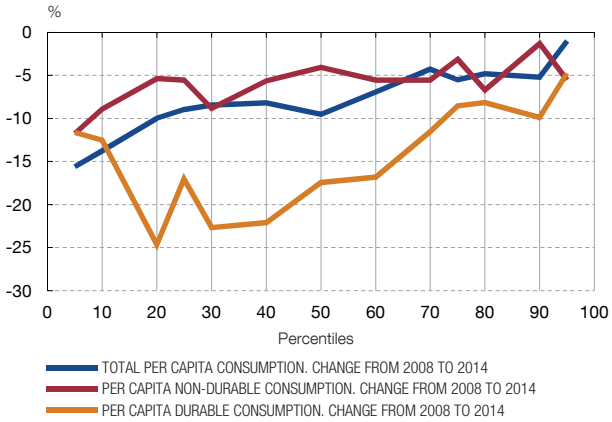
CHART 10

Changes in per capita and total consumption followed developments in per capita and total income, although the change was smaller, such that changes in consumption inequality were smaller. In the bottom part of the distribution it was seen that part of the change in consumption was due to lower-income households delaying durable goods consumption in response to falling income.

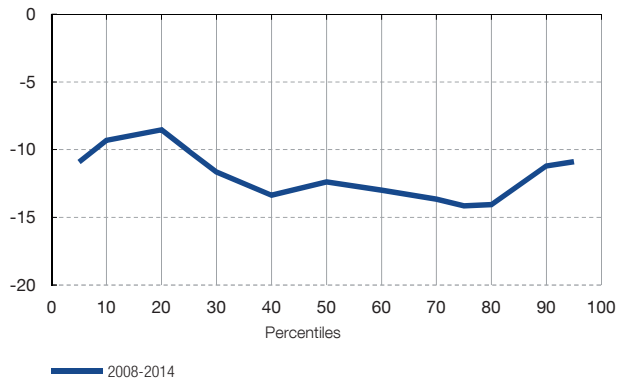
1 CHANGE IN PER CAPITA CONSUMPTION BY PERCENTILE



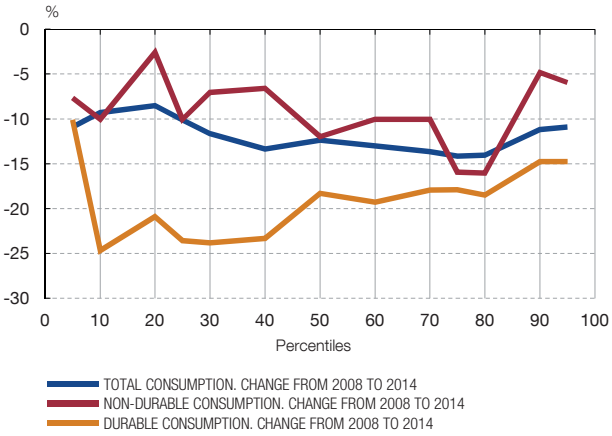
2 CHANGE IN PER CAPITA CONSUMPTION BY TYPE OF GOOD AND PERCENTILE



3 CHANGE IN TOTAL CONSUMPTION BY PERCENTILE



4 CHANGE IN TOTAL CONSUMPTION BY TYPE OF GOOD AND PERCENTILE



SOURCE: Banco de España (EFF).

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Finally, wealth inequality grew significantly during the crisis. The Gini index for net wealth rose by almost a tenth of a percent over the period from 2008 to 2014, after a period in which it had remained stable (see Chart 11). This increase in wealth inequality is also confirmed with other concentration measures. The proportion of net wealth corresponding to the wealthiest 1%, 5% and 10% increased during the period. Thus, 10% of the population with the most wealth accumulated 44% of total net household wealth in 2008, a percentage that rose to almost 53% in 2014. Similarly, the percentage of net wealth of the wealthiest 5% of the population increased by 8 pp over the period 2008-2014, while the percentage of net wealth of the wealthiest 1% of the population increased by 5 pp.

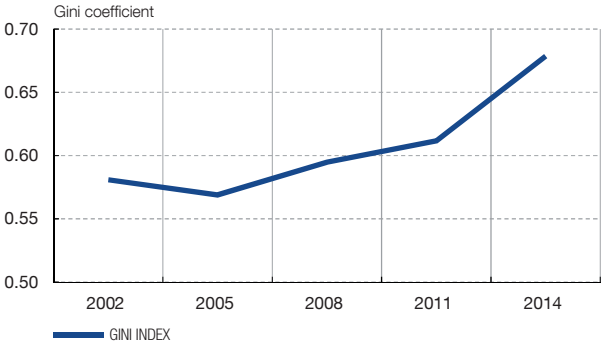
The increase in wealth inequality was due to various factors. First of all, the average value of real assets, which are those in which the lower part of the income distribution holds

WEALTH INEQUALITY GREW OVER THE COURSE OF THE CRISIS

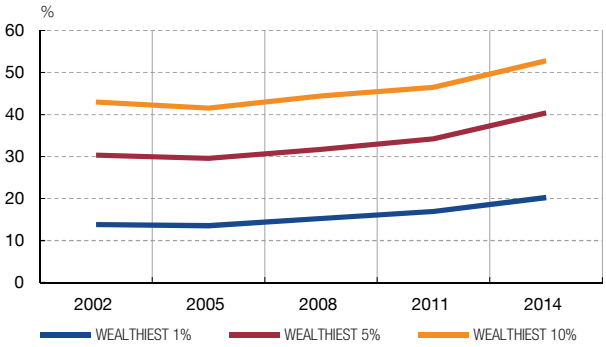
CHART 11

The net wealth Gini index has risen to over 60% in recent years. In 2014, the wealthiest 1% owned 20% of the country's wealth and the wealthiest 10% owned over 50%.

1 GINI INDEX FOR NET WEALTH



2 PERCENTAGE OF NET WEALTH CORRESPONDING TO WEALTHIEST 1%, 5% AND 10%



SOURCE: Banco de España (EFF).

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most of its wealth, fell between 2008 and 2014 by more than 30%, while that of financial assets, mainly owned by the upper part of the wealth distribution, even rose in value. Moreover, the prudential saving of higher-income households, already mentioned, should be noted. Finally, in the lower-income segment there was a drop in the percentage of households purchasing real estate assets. Specifically, whereas in 2008 78% of households in the first two income deciles owned their own home, this percentage had dropped to 67% by 2014, in contrast with the decline in this percentage in the ninth decile, which was just 3 pp.

5 Conclusions

The recent economic crisis caused a marked rise in wealth and income inequality indicators in many OECD countries, including Spain. The economic literature has identified multiple channels through which inequality can affect economic growth by conditioning individuals' planned investment in physical and human capital. Understanding the causes and consequences of inequality, however, requires an analysis of the various relevant dimensions of this concept (wages, household income, consumption and wealth).

The analysis in this paper highlights the narrow wage dispersion in Spain while the high unemployment rate leads to a high level of inequality in terms of gross per capita income. Differences between employees' hourly wages in Spain are not particularly large by international standards, and did not rise during the crisis. By contrast, there was a very significant rise in unemployment and a reduction in the number of hours actually worked. This primarily affected lower-income groups, and so considerably increased inequality in wage income and households' per capita gross income. In general, the high unemployment rate implies that the level of gross income inequality in Spain is high compared to other countries, even during economic booms.

Spain's level of inequality is lower when total household gross income is analysed and it decreased during the crisis as a result of pensions evolving more favourably than wages. Various factors underlie the lower inequality observed in terms of households' total gross income, such as large average household sizes in Spain. This is partly due to young people tending to live with their parents for longer, and the fact that pensioners, who usually live in households with fewer members, are overrepresented at the bottom end of the income distribution. Consequently, the fact that average pensions evolved much more favourably than wage earnings over the course of the crisis reduced total household income inequality.

Inequality in per capita consumption rose during the crisis, particularly as a result of the drop in spending on durable goods. Consumption inequality is generally lower than income inequality. Also, developments in total income inequality over the past downturn were passed on to consumption, but with a certain degree of smoothing.

Wealth inequality exceeds income inequality and increased over the course of the crisis, although Spain's wealth inequality is moderate by international standards. The fact that wealth inequality exceeds income equality is partly a result of high-income households having more savings. Differences in the asset portfolios held by different population strata, in terms of asset types and their rates of return, are also important in understanding inequalities in wealth and how they have evolved. In particular, the fact that real assets (primarily housing) are a significant part of household wealth across the whole distribution helps keep wealth inequality in Spain low by international standards. Meanwhile, the ownership of financial assets by the highest income group drove up inequality between 2008 and 2014, given that returns on financial assets outperformed those on real-estate assets.

Changes in inequality during the recent economic recovery suggest that the falling unemployment rate has narrowed inequality in wage income and per capita income. Both per capita and household consumption inequality can be expected to have followed changes in income, as happened during the crisis, somewhat less intensely as well. In particular, a recovery in consumption at the bottom end of the distribution is foreseeable. Lastly, the recovery in the value of real-estate assets in recent years should have helped temper wealth inequality.

Chart 1
INEQUALITY IN HOURLY EARNINGS

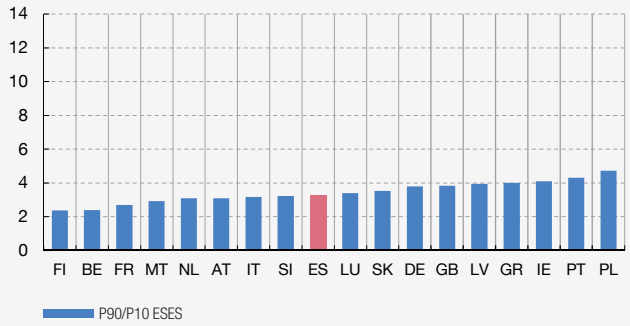


Chart 2
INEQUALITY IN MONTHLY EARNINGS

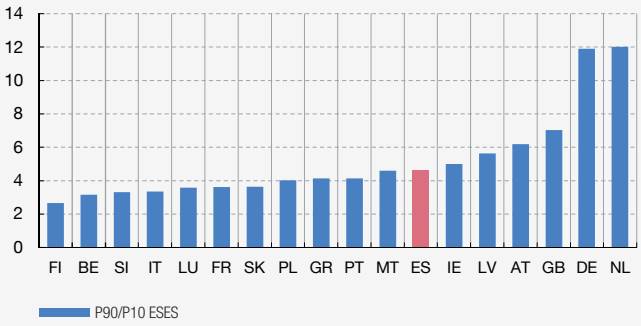


Chart 3
INEQUALITY IN GROSS INCOME PER CAPITA

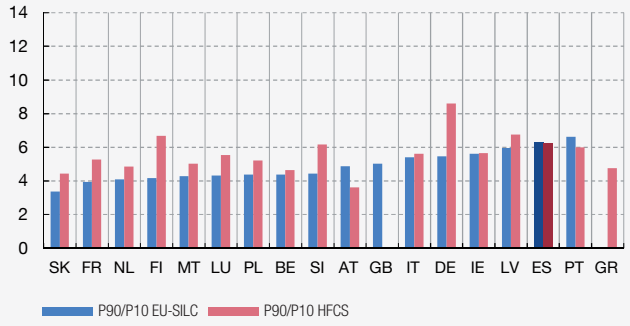


Chart 4
INEQUALITY IN NET INCOME PER CAPITA

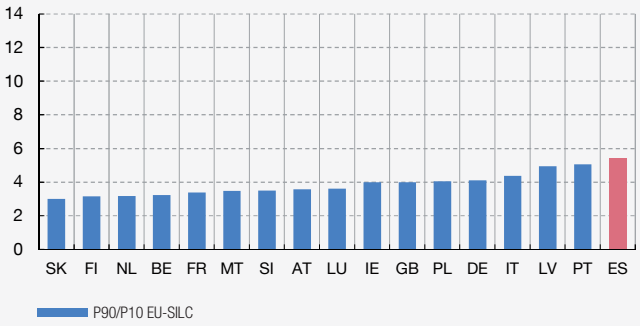


Chart 5
INEQUALITY IN TOTAL GROSS INCOME

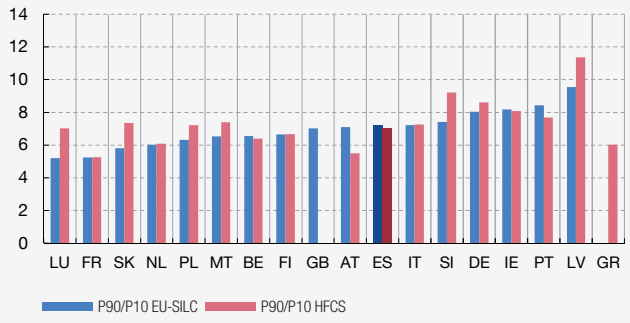


Chart 6
INEQUALITY IN TOTAL NET INCOME

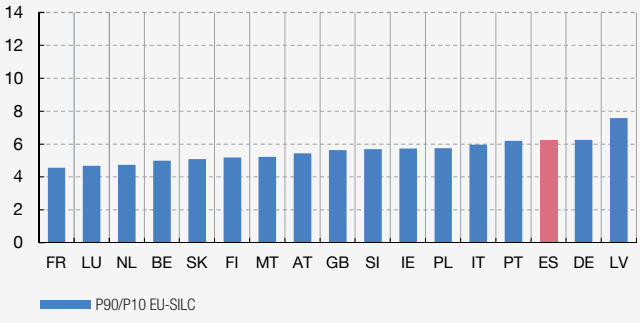


Chart 7
INEQUALITY IN TOTAL CONSUMPTION OF NON-DURABLES

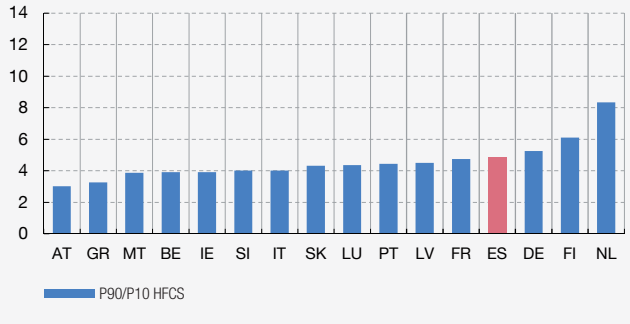
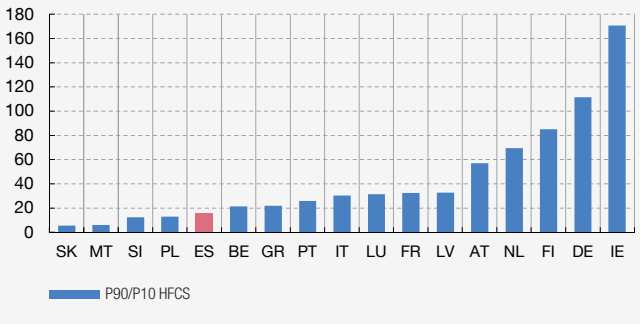


Chart 8
INEQUALITY IN NET WEALTH



SOURCES: Eurostat (European Structure of Earnings Survey – ESES – and European Union Statistics on Income and Living Conditions – EU-SILC –) and European Central Bank (European Household Finance and Consumption Survey – HFCS –).

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This box provides a comparison of different indicators of inequality in the Spanish economy with those of other European countries, based on 2014 data. Three data sources are used for this purpose. In the case of earnings, the information available refers to the European Structure of Earnings Survey (ESES) released by Eurostat, the design of which is similar to the Spanish survey described in Figure 2 of this paper.[1] For total and per capita income, in both net and gross terms, the European Union Statistics on Income and Living Conditions (EU-SILC) dataset, also published by Eurostat, is used.[2] Finally, the European Household Finance and Consumption Survey (HFCS) is used for consumption and wealth.[3]

In terms of the distribution of hourly earnings, there are few differences between countries. Spain is in an intermediate position relative to the rest of countries analysed, with a P90/P10 ratio of 3.3 (see Chart 1). The level of this indicator is lower than that of countries such as Portugal, Ireland and Greece (above 4), as well as Germany and the United Kingdom (3.8), and is in line with the ratios for Italy, Austria and the Netherlands (near 3.1), although higher than those for France, Belgium and the Nordic countries (between 2 and 3).

In terms of monthly earnings (see Chart 2), Spain is one of the countries where the level of inequality increases more in comparison with hourly earnings, with the P90/P10 indicator rising by 1.3 points. Thus, countries such as Portugal and Greece, with more inequality in hourly earnings, show lower inequality in monthly earnings than Spain. However, the rise in inequality in terms of monthly earnings relative to hourly earnings is particularly significant in Austria, Germany and the Netherlands, where the percentile ratio increases by 3, 8 and 9 points, respectively.

Regardless of the data source used, Spain is one of the euro-area countries with the highest inequality in terms of gross income per capita. As stated earlier in the main text, this high level of inequality per capita can be explained by the higher incidence of unemployment in Spain, which generates a relative concentration of households collecting unemployment benefit payments in the lower part of the distribution.

The EU-SILC dataset also provides information on net household income. According to this information, which takes into account the effect of direct taxation on households, Spain maintains its position in the international comparison. Other countries, such as Germany and Austria, whose tax systems have a greater progressivity, present a relatively lower inequality in net terms compared to that in gross terms.

Unlike per capita income, total household income takes into account household size. Spain is one of the countries with the lowest household size differences between deciles. Thus, the average size of households at the 90th percentile was 2.4 persons in 2014, compared with 2.0 at the 10th percentile. The differences in average household size between different percentiles in other countries are greater. Thus, in Germany, Austria and Finland, household size at the 10th percentile is 1.1 and at the 90th, 2. As a result, according to the EU-SILC and the HFCS, in Spain there is less inequality in total income but more inequality in per capita income than in countries such as Latvia, Germany, Slovenia and Italy (see Charts 5 and 6).

Based on the HFCS it is also possible to compare inequality in total and per capita consumption of non-durable goods. The results of the international comparison of total and per capita income hold for total and per capita consumption. Thus, Spain is one of the countries with greater inequalities in per capita consumption, yet these inequalities decline in relative terms when analysing total household consumption.

Lastly, despite having high inequality in terms of income, wealth inequality in Spain is small when compared internationally. Specifically, the P80/P20 ratio in Spain in 2014 was 15.5, only above that of Slovakia, Malta, Slovenia and Poland, among the countries analysed. By contrast, in Italy this ratio was 30.1, in France, 32.4, and in Germany, over 111.4. Based on international evidence, countries with a higher percentage of ownership of real estate property tend to have lower wealth inequality.[4] Thus, wealth inequality is low in countries such as Spain, Greece, Portugal, Belgium and Italy, where ownership rates are high, while it is higher in countries such as France, the Netherlands, Austria or Germany, which have lower ownership rates.

1 See European Structure of Earnings Survey (http://ec.europa.eu/eurostat/web/microdata/structure-of-earnings-survey).
2 See EU-SILC (http://ec.europa.eu/eurostat/web/microdata/european-union-statistics-on-income-and-living-conditions).
3 The HFCS is the database with the lowest number of countries available and, accordingly, the analysis is confined to the 14 countries for which there are data from the survey, while the ESES and the EU-SILC provide more extensive international coverage.
4 See L. Kaas, G. Kocharkov and E. Preugschat (2017).

The latest available year of the Spanish Survey of Household Finances (EFF) and Structure of Earnings Survey (EES) is 2014. Therefore, there is no up-to-date information on changes in hourly earnings, consumption and wealth inequality in Spain. However, other statistical sources can be used to analyse recent changes (up to 2016) in differences in wage earnings (using Labour Force Survey data) and in total gross and net income per capita (using data from the Spanish Survey on Income and Living Conditions – ECV –).[1] Given that from 2013 Q4 Spain's economy started to recover, posting a high rate of employment growth which continues to date, analysing the changes in inequality in recent years is particularly relevant. Using a different data source does not seem to be particularly problematic on this occasion, since the changes inferred from these surveys coincide with those documented by the EES and the EFF for the 2008-2014 period, as can be seen in the accompanying tables.

As seen in Table 1, the measures of inequality in monthly wage earnings for full-time employees, which would approximate the behaviour of hourly earnings,[2] remained largely stable. Thus, the P90/P10 ratio stood at 3.4 during the 2014-2016 period, only 0.1 pp above the value in 2008. This stability extends to all levels of income of the distribution.

When part-time employees are included, the reduction in inequality during the early years of the recovery was more significant, since the P90/P10 ratio decreased from 5.1 in 2014 to 4.7 in 2016. This change, which was more significant at the bottom part of the wage distribution, practically unwound half of the increase in inequality observed during the crisis. In any event, since 2014 the number of hours effectively worked by employees has recovered somewhat more

1 The Labour Force Survey information refers to the current year and the Survey on Income and Living Conditions to the previous year. As a consequence the last year of the former data is 2016 and 2015 for the latter.

2 The Spanish Labour Force Survey does not have the information necessary to calculate hourly earnings.

Table 1
INDICATORS OF INEQUALITY IN MONTHLY EARNINGS

	Monthly earnings - All wage-earners			Monthly earnings - Full-time employees		
	2008	2014	2016	2008	2014	2016
Gini	0.31	0.33	0.32	0.28	0.28	0.28
P90/P10	4.24	5.12	4.67	3.27	3.43	3.38
P50/P10	2.04	2.45	2.25	1.58	1.72	1.69
P75/P25	1.91	2.15	2.10	1.83	1.92	1.89
P90/P50	2.08	2.09	2.08	2.07	2.00	2.00

Table 2
INDICATORS OF INEQUALITY IN GROSS AND NET HOUSEHOLD INCOME (a)

	Gross household income per capita			Net household income per capita		
	2008	2014	2016	2008	2014	2016
Gini	0.36	0.38	0.38	0.33	0.35	0.34
P90/P10	5.27	6.30	6.07	4.54	5.40	5.28
P50/P10	2.30	2.65	2.57	2.17	2.56	2.53
P75/P25	2.46	2.63	2.61	2.22	2.29	2.30
P90/P50	2.29	2.37	2.36	2.09	2.11	2.09
	Total gross household income			Total net household income		
	2008	2014	2016	2008	2014	2016
Gini	0.4	0.4	0.4	0.37	0.38	0.38
P90/P10	7.6	7.2	7.2	6.42	6.23	6.00
P50/P10	3.1	2.8	2.8	2.86	2.65	2.60
P75/P25	2.9	2.9	2.9	2.62	2.67	2.66
P90/P50	2.4	2.6	2.6	2.25	2.35	2.31

SOURCE: INE (Spanish Labour Force Survey and Survey of Income and Living Conditions)

a Household income per capita and consumption per capita are adjusted using the OECD equivalence scale. Income in 2014 euro.

slowly than employment, which raises doubts as to whether the rise in part-time work,[3] the reduction in hours worked and the longer duration of unemployment will indicate the existence of a component that will persist beyond the crisis, which could condition inequality in the future.[4]

As regards gross household per capita income, inequality measured by the P90/P10 ratio declined during the 2014-2016 period from 6.3 to 6.1, recovering in this case a small share of the increase built up over the course of the crisis, although it must be noted that in this case earnings refer to 2015. As with wage earnings, the decrease in inequality was greater in the case of households positioned in the lower part of the distribution of gross income per capita: the P50/P10 ratio decreased from 2.7 to 2.6. Likewise, net income per capita decreased from 2.6 to 2.5. In this case, the reduction of unemployment for the less-educated was especially slow in the first few years of the recovery, which limited the decline in the inequality indices. In addition, as a result of the greater presence of precarious employment at the low end of the distribution, inequality indicators decline less in the income per capita statistics than in the wage statistics, mainly because, similarly to the case of the EFF, the ECV sample is representative of all the population (including persons who are employed, unemployed and inactive at the time of the survey), whereas the EES sample is restricted to persons who have been in work throughout the month of October of the year of reference. This means that more precarious employment is reflected better in the first source.

Finally, despite the moderate decline in inequality in per capita income during the recovery, it is noteworthy that inequality in total household income was lower in 2016 (and 2014) than in 2008, especially at the lower end of the distribution.

In conclusion, the recovery period experienced by the Spanish economy since 2013 has helped reduce the inequality indices of wage earnings and, to a lesser extent, of per capita income. Although there are no consumption data yet, inequality in total and per capita consumption will foreseeably emulate the trends in income set forth above, albeit less strongly, as occurred during the crisis period. In particular, a recovery of consumption in the lower part of the distribution, especially after the years during which consumption of durable goods contracted, is foreseeable.[5] Finally, the recovery of the median value of real assets in recent years should also lead to a fall in wealth inequality.

3 The percentage of part time employees in Spain is closer, although still below, than that of part-time hires in the euro area.

4 See Box 6, "Alternative measures of unemployment for the Spanish economy" of the "Quarterly report on the Spanish economy", Economic Bulletin, 2/2017.

5 See M. Martínez Matute and A. Urtasun (2017), "The recovery of private consumption in Spain by product type and household", Economic Bulletin, 2/2017, Banco de España.

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