The Relationship Between Income and Wealth Inequality: Evidence from the New OECD Wealth Distribution Database

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Abstract

This note describes the distribution of household wealth for 18 OECD countries, using the newly released OECD Wealth Distribution Database that has been collected based on a set of commonly agreed conventions and classifications. The new data show that household wealth is much more unequally distributed than household income, due to the very high levels of concentration at the top of the wealth distribution. On average, across countries, the 10% wealthiest households hold half of total wealth, the next wealthiest 50% hold almost the other half, while the 60% least wealthy households own little over 13%. There appears to be a high degree of correlation between wealth and income at the microeconomic level for both rich and poor households, as well as some evidence of a positive cross-country correlation between income and wealth inequalities.

Keywords : Wealth ; income ; inequality ; household ; OECD; database.

1. Introduction

The evidence of higher income inequalities in most OECD countries has recently attracted much attention from both policy-makers and the media – as witnessed by the debate that followed the publication of Thomas Piketty's book *Capital in the 21st Century* (2014) and by the very large number of studies on changes in income inequality. There is, however, much less evidence on inequality in the distribution of household wealth, both within and between countries. This situation is, however, changing rapidly. Following previous efforts such as the *Luxembourg Wealth Study* (Sierminska et al, 2006) which have informed previous OECD analysis (Jantii et al., 2008), the OECD has collected a new set of data on the distribution of household wealth for 18 OECD countries (the *OECD Wealth Distribution Database)*, based on the set of conventions and classifications proposed in the *2013 OECD Guidelines for Microstatistics on Household Wealth*. The data available for 18 OECD countries are extensively described in Murtin et al. (2015).

The contributions of this note are twofold. First, it compares the levels of household wealth and the degree of wealth inequality across OECD countries. Evidence highlights large differences in wealth holdings across OECD countries, and much larger wealth inequality compared to income inequality. Second, it points to a strong association between income and wealth among both rich and poor households when looking at the joint distribution of income and wealth observed at the microeconomic level. There is also some evidence of a significant correlation across countries between income and wealth inequality measures.

Section 2 introduces the *OECD Wealth Distribution Database* and describes cross-country differences in household wealth. Section 3 focuses on wealth inequality and compares it with income inequality. Section 4 investigates the microeconomic association between income and wealth. The last Section concludes.

2. Levels of household wealth across OECD countries

The *OECD Wealth Distribution Database* (see Box 1 for a description) provides estimates of household wealth from a variety of micro-level sources for 18 OECD countries. Levels of household wealth (the balance between household financial and non-financial assets and their liabilities) per household are shown in Figure 1. The highest *mean* levels of wealth are observed in Luxembourg, the United States, Canada, Australia, the United Kingdom and Spain, while the Slovak Republic, Finland, Greece, Norway and the Netherlands record the lowest levels. The net wealth of the *median* household is less affected by potentially inaccurate measurements of wealth at the top of the distribution. Shifting from mean to median net wealth leads to large differences in country ranking, lowering the position for the United States, Austria and Germany due to higher wealth inequality on these countries.

Household wealth can also be expressed as a share of household income, which intuitively corresponds to the number of years a household could maintain its living standard in the future by drawing down its accumulated wealth. Based on this measure, the stock of net

wealth varies between three and nine times the value of household income; wealth-to-income ratios are comparatively low in Norway, Finland, the Netherlands and Germany, but higher in Spain, Luxembourg, Italy, Portugal and the United Kingdom.

Box 1: A new set of OECD statistics on the distribution of household wealth

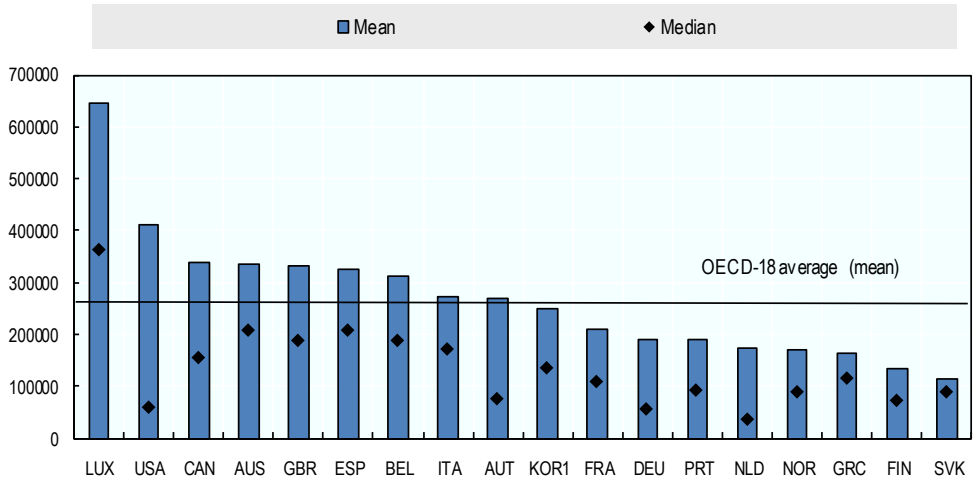
The data in the *OECD Wealth Distribution Database* are based on national sources. A subset of the information collected is available to users in the OECD dissemination platform (http://stats.oecd.org/index.aspx?datasetcode=Wealth). Estimates referring to the most recent year (generally 2010) are currently available for 18 OECD countries, while estimates referring to more than one year are available for six countries. Countries included are Australia, Austria, Belgium, Canada, Finland, France, Germany, Greece, Italy, Korea, Luxembourg, the Netherlands (based on two different sources), Norway, Portugal, the Slovak Republic, Spain, the United Kingdom (limited to Great Britain) and the United States. For seven countries, estimates were obtained through an OECD questionnaire completed by national contact points in national statistics offices and other producers of official statistics (e.g. central banks) that regularly collect micro-level information on household wealth; among them, estimates for Australia, Canada, Korea, the United Kingdom and the United States are based on dedicated household wealth surveys, while those for the Netherlands and Norway are based on tax and administrative records. For 11 countries (participants in the *Euro-System Household Finance and Consumption Survey*), estimates for the most recent year were computed by the OECD based on the public use file provided by the European Central Bank (complemented, in the case of France and Italy, by estimates for earlier years provided by national contact points). The data in the *OECD Wealth Distribution Database* share the following characteristics:

- They refer to the distribution of real and financial assets and liabilities across households (rather than across persons or adults), with no adjustment made to reflect differences in household size (which is the convention used by the OECD when analysing the distribution of household income). The data also refer to the assets and liabilities held by *private* households resident in the country.
- Assets and liabilities are classified based on the nomenclature proposed by the *OECD Guidelines*. This nomenclature distinguishes between five categories of non-financial assets, eight categories of financial assets, and three categories of financial liabilities. Among financial assets, assets held in the form of "pension schemes related to employment" are reported as a separate category (the data shown below refers to a narrower definition of household wealth that excludes these assets from the total).
- Information is collected on net household wealth broken down by housing status (three groups), age of the household head (six groups), number of household members (five groups), household type (six groups), education of the household head (four groups), main source of income (five groups), and wealth and income quintiles (with additional breakdowns for the top 10%, 5% and 1% of the distribution). Information is also collected on the share of households holding various types of assets and liabilities; on the mean value of assets and liabilities for households holding them; on the joint distribution of household wealth and income across household quintiles; and on the extent of over-indebtedness across households based on two measures of over-indebtedness (debt-to-asset ratio above 75%; and a debt-to-income ratio exceeding 3).

Despite efforts to ensure common treatments and classifications across countries, the measures included in the *OECD Wealth Distribution Database* are affected by differences that limit their comparability. Two of the most important are: i) differences between countries in the year the data was collected (ranging between 2010 and 2013, for the most recent observation); ii) differences in the degree of oversampling of rich households across countries. With respect to the latter, differences (ranging between no oversampling for Australia and Canada, to large oversampling for the United States and Spain) may affect international comparisons of both levels and concentrations of household wealth as in all countries, most wealth is typically held by the richest households.

Figure 1. Mean and median net wealth per household in selected OECD coutries

Micro-data, 2012 or latest available year, values in 2005 USD



Note: Countries are ranked, from left to right, in decreasing order of mean household wealth per household. Wealth values are expressed in 2005 USD by, first, expressing values in prices of the same year (2005) through consumer price indexes and, second, by converting national values into a common currency through the use of purchasing power parities for household consumption.

Source: OECD Wealth Distribution Database.

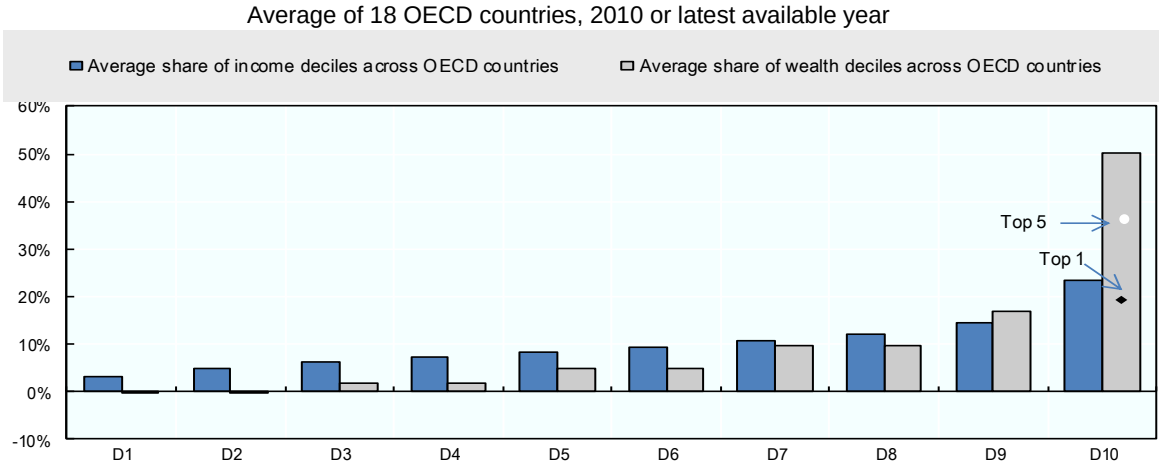
Assets prices (relative to the consumer price index) and household savings rates are among the factors that may have influenced the level of household wealth in the long run. Among these potential drivers, housing prices (relative to consumer prices) are the most important one, as there is a strong positive correlation between median net wealth of households and the annual real growth rate of house prices over a period spanning about 30 years. Conversely, no significant correlation exists between the real growth of financial asset prices, the household savings rate and median wealth, reflecting the high concentration of this type of assets among a small fraction of households.

3. How does wealth inequality compare across OECD countries?

In all countries included in the *OECD Wealth Distribution Database*, the wealth distribution is much more concentrated than the income distribution as shown on Figure 2. On average, the top 10% (of households) accounts for about 50% of total household wealth, while the top 10% (of individuals) accounts for about 25% of total household income. On average, the wealth share of the top *centile* in the wealth distribution is almost as large as the income share of the top decile of the income distribution.

Conventional measures of inequality such as the Gini coefficient are not well suited to describe the distribution of household wealth, due to the large fraction of households with zero or negative wealth. A more convenient, albeit partial, measure of wealth inequality is the ratio between mean and median net wealth: mean net wealth is 2.5 times larger than median net wealth across the 18 OECD countries covered in the *OECD Wealth Distribution Database*, ranging between more than 7 times in the United States, around 5 times in the Netherlands, 4 times in Germany and Austria, and close to twice in most other OECD countries. This compares to values of around 1.2 in the case of household income for most OECD countries.

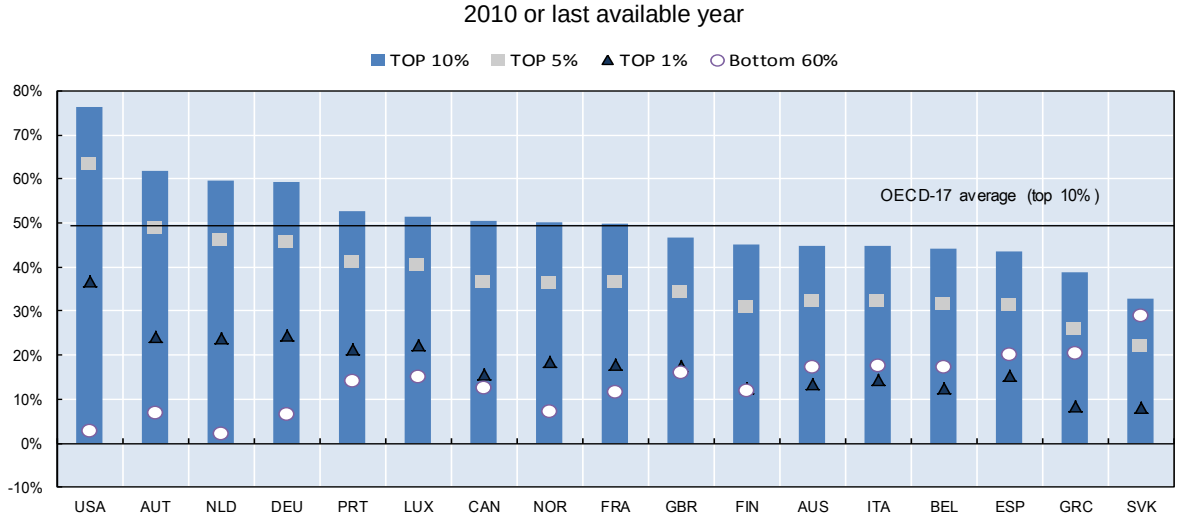
Figure 2. The distribution of household disposable income and net wealth across deciles



Sources: OECD Wealth Distribution Database and OECD income Distribution Database.

A different measure of wealth inequality is the share of household wealth held by the top percentiles in the distribution. On average, across the countries shown in Figure 3, the top 10%, 5% and 1% wealthiest households own 50%, 37% and 18% of total household wealth, respectively, while the bottom 60% of the distribution owns only 13% of total household wealth. Based on these measures, wealth is the most concentrated in the United States, Austria, the Netherlands and Germany.

Figure 3. Wealth shares of top percentiles of the net wealth distribution



Note: Countries are ranked from left to right, in decreasing order of shares of wealth owned by the top 10%. The bottom 60% refers to the share of quintiles I, II and III in the total wealth.

Sources: OECD Wealth Distribution Database.

4. What is the relationship between income and wealth inequality?

To shed light on how income and wealth inequalities are jointly determined and interact with each other requires looking at their joint distribution. As an example, Table 1 shows the joint distribution of income and wealth in the United States in 2013: for each quintile of the wealth distribution, the table reports the shares of households belonging to the various quintiles of the (pre-tax) income distribution. A perfect correlation between income and wealth would translate into a concentration of people on the diagonal cells, while a zero correlation would spread wealth quintiles equally across income quintiles. *A priori*, it may be expected that income and wealth are positively correlated as higher wealth holdings, especially financial assets, generate higher income from capital and, conversely, higher income can be used to accumulate more wealth. But it is also possible that high wealth reflects elements that are only poorly correlated to household income (such as inheritances or changes in asset prices).

For the United States, Table 1 shows that the association between income and wealth is high at the two extremes of the distribution but much weaker in the middle: households in the bottom quintile of the wealth distribution are five times more numerous in the bottom of the income distribution than in the top quintile, while households in the top quintile of the wealth distribution are ten times more numerous in the top of the income distribution than in the bottom quintile. Conversely, households in the third quintile of the wealth distribution are almost equally distributed among the various income quintiles.

Table 1. The joint distribution of income and wealth in the United States, 2013

	Wealth quintile I	Wealth quintile II	Wealth quintile III	Wealth quintile IV	Wealth quintile V	Total
Income quintile I	0.08	0.05	0.04	0.03	0.01	0.20
Income quintile II	0.05	0.06	0.04	0.03	0.02	0.20
Income quintile III	0.04	0.05	0.05	0.04	0.02	0.20
Income quintile IV	0.02	0.03	0.05	0.05	0.04	0.20
Income quintile V	0.01	0.01	0.03	0.04	0.11	0.20
Total	0.20	0.20	0.20	0.20	0.20	**1.00**

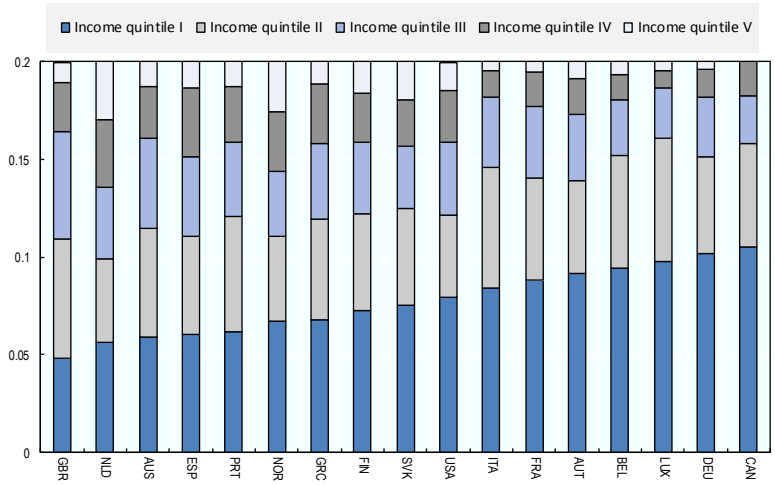
Note: For each income (wealth) quintile, the sum of values across wealth (income) quintile equals 0.20. The measure of household income used her is gross of taxes and social security contributions.

Sources: OECD Wealth Distribution Database and OECD Income Distribution Database.

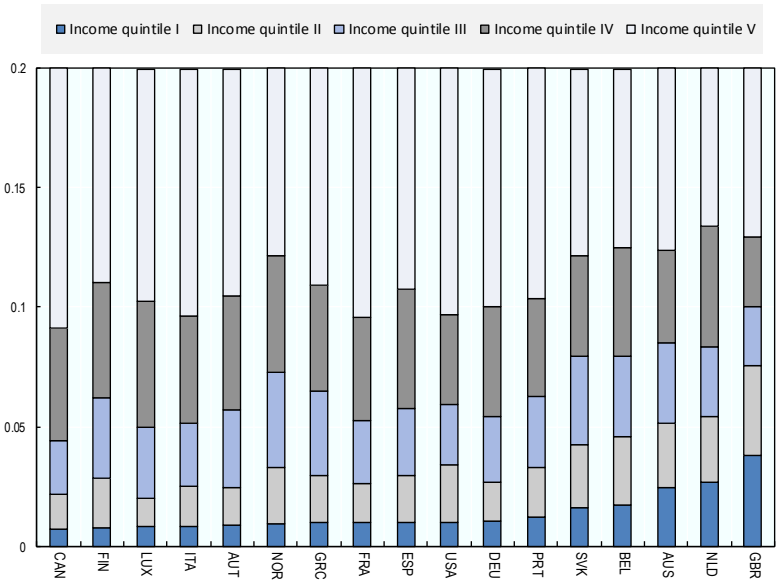
The observation made for the United States can be generalised to all OECD countries. As shown in Figure 4, low-wealth households are also more likely to be low-income households (Panel A) while, conversely, high-wealth households are also typically high-income (Panel B). The concentration of households that are both income-poor and wealth-poor is largest in Canada, Germany and Luxembourg (Panel A); while the concentration of high-wealth and high-income households is largest in Canada, France, Italy and the United States. The United Kingdom, the Netherlands and Australia display a relatively low degree of correlation between income and wealth for both poor and rich households.

Figure 4. Income distributions of the bottom and top wealth quintiles across OECD countries

Panel A. Income distribution of the bottom wealth quintile



Panel B. Income distribution of the top wealth quintile



Note: Countries are ranked from left to right in increasing order of the share of households in the first income quintile. In panel A, the bottom wealth quintile refers to the first quintile: in the case of Canada, data for the quintiles IV and V are not available separately. In panel B, the top wealth quintile refers to the fifth wealth quintile.

Source: OECD Wealth Distribution Database and OECD Income Distribution Database.

At the cross-country level, the relationship between income and wealth overall inequality is positive (*i.e.* countries with a larger degree of income inequality also tend to display a higher concentration of wealth), but this link is not very strong.[1] Across the 17 OECD countries for which data are available, there is a positive and significant relationship between the income

[1] In theory, the correlation of ranks in the income and wealth distributions and their respective degree of inequality are completely independent statistical measures. A large correlation of ranks could co-exist with low inequality in the marginal distributions of income and wealth, and vice-versa.

ratio of the 90th and 10th percentiles of the income distribution and the wealth share of the top 1% in the wealth distribution.[2] This relationship is, however, not always robust to the selected inequality measures.

6. Conclusion

This note has described some of the evidence on the distribution of household wealth for 18 OECD countries drawn from the newly released *OECD Wealth Distribution Database* that has been collected from existing micro-sources based a set of commonly agreed conventions and classifications. Despite the progress achieved through the completion of the *OECD Wealth Distribution Database*, the statistical agenda is still large. First, much more ex ante harmonisation of wealth data, and greater convergence of measurement practices, is needed. Second, the high concentration of wealth at the top underscores the importance of using complementary sources (e.g. tax records or estimates of 'concealed' wealth) in addition to household surveys. Finally, ways of integrating information on pension wealth are needed.

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[2] Due to the small number of countries, this correlation is however significant only at a 10% confidence level. When one looks at the wealth shares of the top 5% and top 10%, the p-values of the latter correlation drop to 0.12 and 0.15.