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DISTRIBUTIONAL CONSEQUENCES OF ASSET PRICE INFLATION IN THE EURO AREA

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JEL Classification: D31, E21, E52 and E58
Keywords: asset price inflation and wealth redistribution

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1 Introduction

The unconventional monetary policy measures recently introduced in the Euro area have been accompanied by strong movements in a number of important financial market prices. Equity and sovereign bond markets in particular have witnessed strong price increases over

relatively short periods of time. The EuroStoxx 50 Index, for example, surged by approximately 24 percentage points over the six months window starting three months prior to the ECB announcement of sovereign bond purchases on January 22, 2015. Over the same period, the price of the benchmark 10 year German Bund increased by approximately 6 percentage points.[1] Capital gains were even larger for sovereign bonds of Euro Area periphery countries (Italy, Spain, Portugal). Corporate bond prices also increased and mortgage rates significantly declined, thereby supporting housing demand and housing prices in the Euro Area.

This paper seeks to document and quantify the distributional consequences associated with asset price inflation in the Euro Area. To do so it uses the Household Finance and Consumption Survey (HFCS), which surveys Euro Area households and provides detailed, harmonized and representative information about households' balance sheets in the Euro Area countries. The paper thus adds to recent discussions about the distributional consequences of asset price increases, which have received increasing attention among policymakers, e.g., Mario Draghi (2015) or Andrew Haldane (2014).

We find that only a fairly small subset of the population benefits from capital gains in bond and equity markets; three quarters of the population fail to benefit at all from bond price or equity price increases. While the winners from bond price increases are evenly spread across the household net wealth distribution, equity price increases are highly concentrated within the top 5% of the net wealth distribution. As a result, equity price increases strongly increase net wealth inequality in the Euro Area. Bond price increases, however, leave net wealth inequality largely unchanged, even though only a small subset of the population is benefitting from these. These findings for the Euro Area as a whole are rather robust and apply similarly to individual Euro Area countries.[2]

The situation differs significantly when considering housing price increases in the Euro Area. First, housing price increases affect a much larger part of the population than bond price or equity increases, with the median household benefitting considerably from housing price increases. Second, housing price increases tend to be concentrated among the middle class and upper middle class of the Euro Area net wealth distribution.[3] Poor and rich

[1] The Bund with the ISIN DE0001102358 increased from 106.175 on October 22, 2014 to 112.58 on April 22, 2015, not accounting for accumulated coupon payments (1.5% per year).

[2] In some countries, e.g., Germany and the Netherlands, net wealth inequality even decreases following a bond price increase.

[3] We define poor households as those in the bottom 20% of the net wealth distribution, middle class

households benefit (relative to their net wealth position) less from housing price increases; among the poor fewer household own houses and rich households hold a smaller proportion of their wealth in housing. Third, there exists a considerable amount of heterogeneity between Euro Area countries. In particular, in some countries (Finland, Netherlands, Portugal, Spain), poor households own more often a house and are highly leveraged. As a result, in these countries poor households benefit more (relative to their net wealth) from housing price increases than any other wealth class. The opposite is true in Austria, Germany, France, Italy and Malta, where the poor own more rarely houses and thus benefit the least from housing price increases amongst all net wealth classes. Indeed, in Germany where home ownership rates are particularly low, the median household fails to benefit at all from housing price increases.

We also compare how capital gains spread over the household income distribution. While low income households profit most from housing price increases, capital gains from equity price increases accrue largely to the group of top income earners. Bond price appreciations spread approximately evenly across the income distribution.

Finally, we identify a set of households that largely fails to benefit from asset price increases, as they fall short of investing a significant share of net wealth in long dated assets. This group comprises more than 20% of Euro Area households. We show that these households have rather low net wealth and fairly low income levels.

A number of papers discusses the distributional consequences of monetary policy decisions. Most studies focus on the distributional effects of inflation. Doepke and Schneider (2006b), for example, study the distributional implications of the U.S. Great Inflation episode in the 1970's. Adam and Zhu (2015) report results for the redistributive effects of surprise deflation and inflation in the Euro Area; Meh and Terajima (2008) report results for Canada. Meh, Ríos-Rull and Terajima (2010) analyze the welfare implications of inflation targeting and price-level targeting strategies, calibrating their model to the nominal wealth positions documented for Canadian data. Brunnermeier and Sannikov (2013) discuss the redistributive effects of monetary policy in a setting with financial frictions and how policy can occasionally use these effects of avoid liquidity and deflationary spirals. Coibion et al. (2012) analyze the effects of monetary policy shocks for inequality. While not providing direct implications for wealth inequality, they show that a contrac-

households as those in the next 50%, upper middle class as the next 25% and rich households as the top 5% of the distribution.

tionary monetary policy shock in the U.S. raises the inequality of income, labor earnings, expenditures and consumption across households. Gornemann, Kuester and Nakajima (2014) study the distributional effects associated with changes in the systematic conduct of monetary policy. Albanesi (2007) documents the positive cross-country relationship between inflation rates and inequality and rationalizes it using a political economy model in which low income households are more exposed to inflation than high income households. Doepke and Schneider (2006a, 2006c) show how inflation induced redistribution can have long-lasting negative real effects because winners and losers tend to have different age and employment status, but that average household welfare might nevertheless increase.

The present paper adds to this literature by quantifying the distributional effects of asset price increases in the Euro area. While asset price increases tend to occur around the announcement date of central bank asset purchase programs, quantifying the asset price effects is difficult, especially in light of the fact that there is only a single observation in the Euro Area of a large scale asset purchase program with well-defined purchase targets. For this reason, the present paper considers an exogenous asset price increase of 10%. Readers interested in assessing the quantitative effects of smaller or larger price changes should simply proportionately rescale the quantitative findings reported below.

The paper is structured as follows. After presenting the data set and the accounting methodology in the next two sections, section 4 presents our main quantitative findings. It starts by presenting the distribution of individual gains for bond price, equity price and housing price increases, then discusses how these gains covary with the net wealth and income distribution, finally discusses which set of households fails to gain from asset price increases. The main text often focuses on results for the Euro Area as a whole, but detailed data tables for individual Euro Area countries are provided in the Appendix.

2 The Data Set

The Household Finance and Consumption Survey (HFCS) is a coordinated household survey collecting detailed information on the households' balance sheet items. Financial variables are all reported at market value. The reference year for the first, and latest available, survey wave is 2010. The survey covers about $62,000$ households, from all Euro Area countries at the time, except for Ireland.

Data is collected using a harmonized methodology to insure country-level representa-

tiveness. To maximize comparability across countries, the survey output is harmonized through usage of a common set of target variables. The survey also employes a common blueprint questionnaire to foster input harmonization. The survey is multiply imputed to account for missing data and oversamples wealthier households. Household weights are adjusted for unit non-response and calibrated to external information such as population distributions. Basic stylized facts of the survey are documented in HFCN (2013a, 2013b).

3 Methodology

We use the portfolio information available from the HFCS to compute household net wealth, which is defined as the difference between all household assets minus all liabilities. We then scale the household's bond, housing and equity holdings by its net wealth position.[4] Multiplying the resulting ratios with the considered 10% price increase delivers the household's capital gain of the considered asset class in relation to its net wealth position. We define housing wealth as the sum of privately owned real estate and mutual fund holdings for funds that predominantly invest in real estate. Bond holdings are defined as the sum of outright bond holding, holdings of mutual funds predominantly investing bonds and 79% of private pension holdings.[5] Equity holdings are the sum of holdings of stocks and business wealth, mutual funds investing predominantly in equities, and 21% of private pension holdings.[6]

[4] For households that hold a negative net wealth position, we set the ratio to zero, whenever considering individual household distributions. When considering household groups, say the bottom x% of the net wealth distribution, we sum the gains and net wealth holdings of all households in that group, provided household net wealth is positive.

[5] Of the € 6.7 trn of financial assets held by insurance corporations and pension funds in the EA, according to the Euro Area Accounts, only about € 0.85 trn are invested in equities. A further € 1.6 trn is invested in mutual funds, but these are to a large extent themselves invested in bonds: the other financial intermediaries sector, which consists mainly of mutual, private equity and hedge funds, holds only about 36% of its assets in quoted and unquoted shares. This suggests that of the € 6.6. trn of pension assets in the insurance sector only about € 1.4trn (= € 0.85 trn+36%·€ 1.7trn), i.e., only about 21% are invested in equities, with the rest being invested in bonds.

[6] The break-down of mutual funds into those predominantly investing in bonds, equities and real estate is not available for Finland, Germany, Greece, the Netherlands and Portugal. For Germany, we use additional country-specific HFCS data available at the Bundesbank to classify the mutual funds into these subcategories. For Greece, the Netherlands and Portugal we observe whether or not households held a particular mutual fund category, but not the amounts in each category. For these countries we

4 Results

4.1 The Distribution of Gains Across the Population

Figures 1, 2 and 3 depict the distribution of capital gains relative to household net wealth for a 10 % increase in bond, equity and housing prices, respectively. The figures show how gains are distributed across the population, where households are ordered from left to right according to the size of their gains (relative to household net wealth).[7]

Figures 1 and 2 show that the median household does not benefit at all from bond price or equity price appreciations, while the top 5% winners experience substantial net wealth gains of approximately 3-4%. The latter gains are rather large given the considered 10% increase in bond and equity prices. Overall, Figures 1 and 2 show that the capital gains from bond and equity price appreciations are concentrated among a relatively small subset of Euro Area households.

The situation differs notably for housing price appreciations, as depicted in Figure 3. While 25% of households experience no capital gains, the median household now experiences large gains close to 8% of net wealth. The top 5% and 10% winners experience net wealth increases that are even larger than the considered increase in housing prices. The latter occurs because these households have net wealth levels below the housing value, i.e., have used mortgages to finance their real estate holdings.

Appendix B.1 provides information about the distribution of bond, equity and housing price increases for individual Euro Area countries. It shows that the findings for the Euro Area as a whole extend in a similar way to individual Euro Area countries. The only notable exception is Germany, where - due to low home ownership rates - the median household fails to gain from housing price increases.

While the distribution of capital gains, especially those associated with equity and bond price increases, is rather uneven across Euro Area households, this finding remains uninformative about whether or not the gains are systematically related to household net

assign the total reported mutual fund amount in equal proportions to the categories held. For Finland no breakdown is available; here we use the averages of the other Euro Area countries to impute the category shares. The same procedure is used to impute category amounts when households declared that they do not know the type of mutual funds they hold.

[7] Figures 1-3 report the gains of households in a certain position in that ordering. For example, the gain reported for the top 5% household is such that 95% of households experience lower gains and 5% of households larger gains.

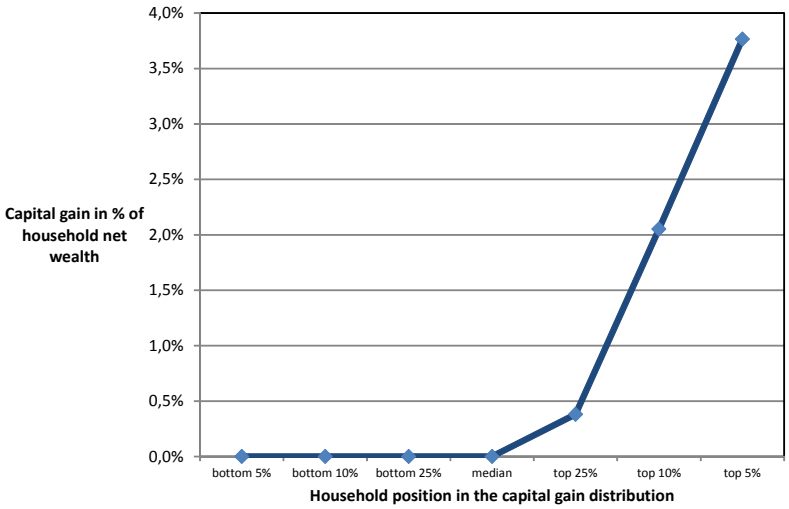

Figure 1: Capital gains associated with a 10% bond price increase

wealth or household income. We explore these issues in the subsequent sections.

4.2 Capital Gains Across the Net Wealth Distribution

Figure 4 depicts the capital gains experienced by different household groups in the net wealth distribution. It considers 'poor households', defined as those in the bottom 20% of the Euro Area net wealth distribution, 'middle class households', defined as the 50% of households above the poor, 'upper middle class households', defined as the next 25% of households, and 'rich households', defined as 5% richest households according to the net wealth distribution. The figure then displays for each household group the average group gains divided by the average net wealth holdings.

Figure 4 shows that the gains from bond price appreciations display no important variation across the four different wealth classes considered. Thus, while only relatively few households benefit from bond price increases, see Figure 1, these households are approximately evenly spread out across the net wealth distribution.

The situation differs for equity price increases, which are heavily concentrated among rich households. The fact that the 5% richest households experience capital gains from equity price increases in the same order as the top 5% household when ordering households according to the size of capital gains, see Figure 2, illustrates the existence of a strong positive correlation between households' net wealth position and equity holdings.

The distribution of real estate gains displayed in Figure 4 has a hump shape. Poor

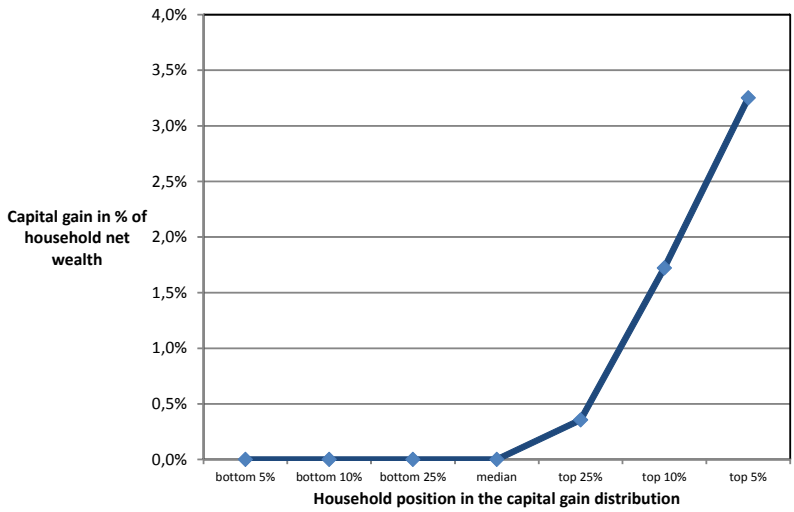

Figure 2: Capital gains associated with a 10% equity price increase

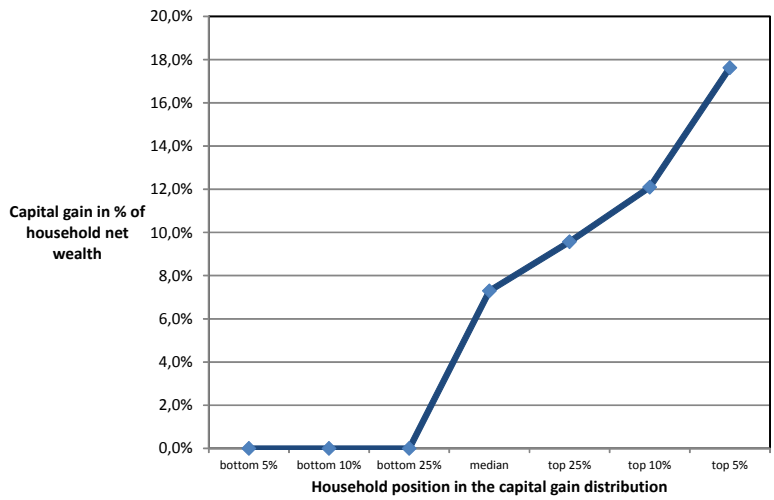

Figure 3: Capital gains associated with a 10% housing price increase

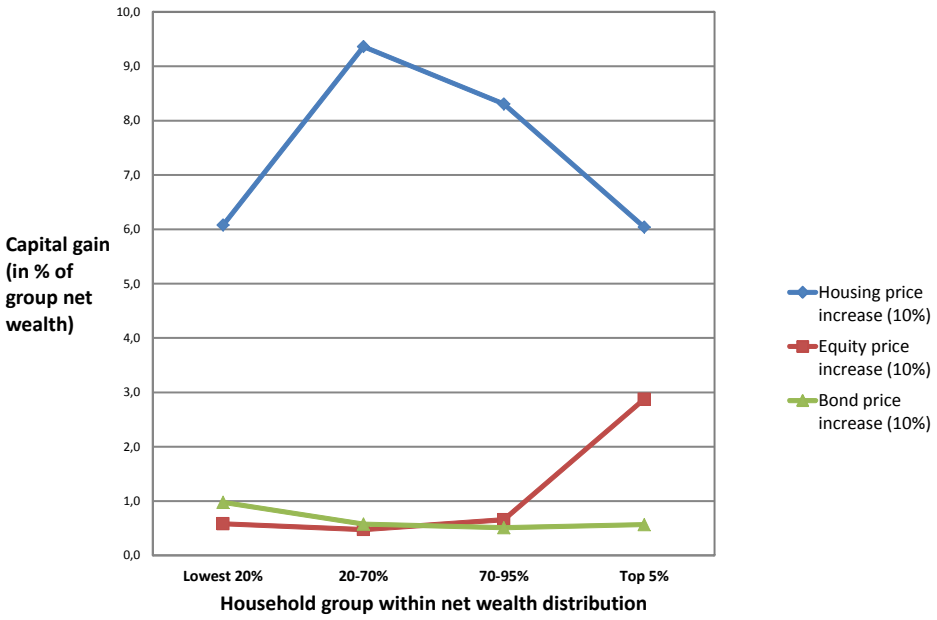

Figure 4: Capital gains across Euro Area net wealth groups

households benefit approximately as much as the group of rich households (relative to group net wealth), while substantially larger gains are experienced by middle class and upper middle class households. This is due to the fact that among poor households there are fewer homeowners. Furthermore, rich households are (relative to their to their net wealth holdings) more invested in equities (business wealth, stocks and stock mutual funds).

While the Euro Area results regarding the distribution of bond and equity price increases across the four wealth groups also hold up for individual Euro Area countries, see the tables provided in Appendix B.2, we find that housing price increases generate considerably more heterogeneous effects across Euro Area countries. We explore this issue in the next subsection.

4.2.1 Heterogeneity Across Euro Area Countries

This section documents that housing price increases generate rather heterogeneous effects across individual countries.[8] Figure 5 shows that in Austria, Germany, France, Italy and Malta the poor benefit relatively little from housing price increases when compared to the Euro Area average. The opposite is true in Finland, the Netherlands, Portugal

[8] See Table A6 in Appendix B.2 for detailed numbers.

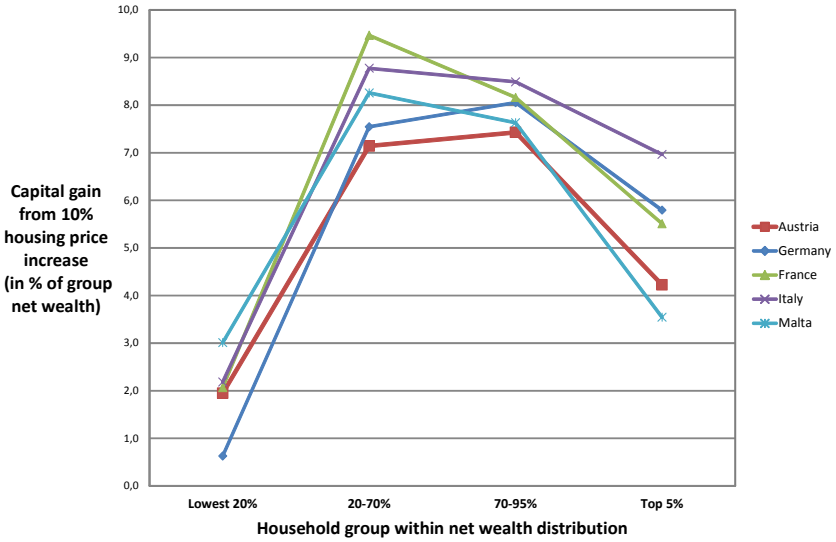

Figure 5: Euro Area countries where low wealth HHs benefit least from housing price increases

and Spain, where the poor benefit disproportionately much from housing price increases, indeed much more than any other net wealth group, see Figure 6. These findings are obtained because in the latter set of countries, poor households are more likely to be homeowners. Since poor households tend to be more heavily leveraged, housing price increases then lead to disproportionately large increases in the poor's net wealth. Clearly, this finding also points towards a potential fragility of the poor's net wealth position with respect to possible house price decreases.

4.2.2 Effects on Net Wealth Inequality

Table 1 reports the Gini coefficients for the net wealth distribution.[9] It reports the coefficient prior to any capital gain realization and after a 10% increase in housing, equity and bond prices, respectively. Table 1 shows that housing price increases lead to a significant decrease in the Gini coefficient, especially for countries where poor households benefit disproportionately much (see Figure 6). Equity price increases, however, lead to a significant increase in the Gini coefficient, while bond price increases leave net wealth inequality largely unchanged. The implied changes in the Gini coefficients thus confirm the analysis based on wealth groups in the previous section.

[9] The Gini coefficient is a measure for the degree of inequality in the distribution and varies from zero (no inequality) to 1 (maximum inequality/complete concentration).

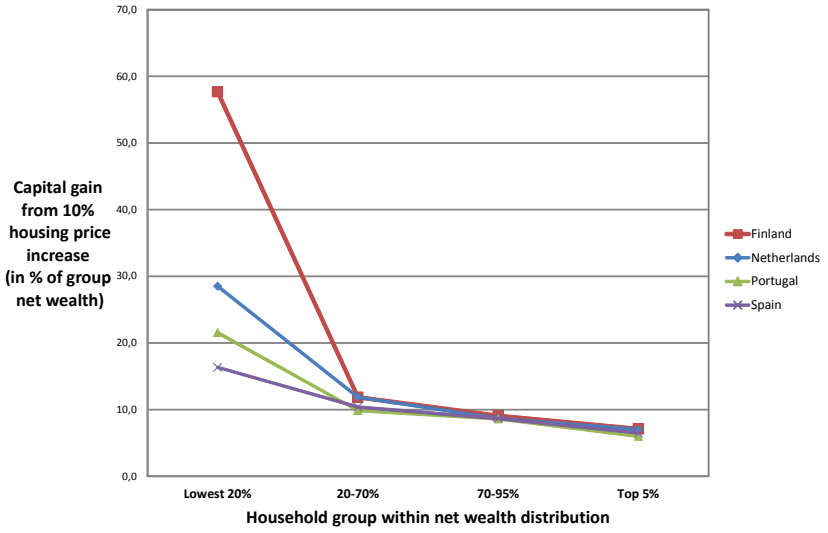

Figure 6: Euro Area countries where low wealth HHs benefit most from housing price increases

	Prior to increase	Housing increase	Diff. Gini (%)	Equity increase	Diff. Gini (%)	Bond Increase	Diff. Gini (%)
Euro Area	0.651	0.647	-0.6	0.654	0.5	0.651	0.0
Austria	0.735	0.732	-0.4	0.740	0.7	0.735	0.0
Belgium	0.592	0.585	-1.2	0.595	0.4	0.593	0.2
Cyprus	0.676	0.670	-1.0	0.682	0.8	0.676	-0.1
Finland	0.603	0.596	-1.2	0.605	0.4	0.603	0.0
France	0.662	0.658	-0.6	0.665	0.5	0.663	0.1
Germany	0.724	0.722	-0.2	0.727	0.4	0.723	-0.1
Greece	0.531	0.529	-0.4	0.532	0.2	0.531	0.0
Italy	0.598	0.596	-0.3	0.600	0.4	0.598	0.0
Luxemburg	0.644	0.640	-0.6	0.645	0.2	0.644	0.0
Malta	0.593	0.587	-1.0	0.601	1.4	0.592	-0.1
Netherlands	0.546	0.539	-1.2	0.546	0.0	0.544	-0.4
Portugal	0.652	0.646	-0.9	0.656	0.6	0.652	0.0
Slovakia	0.438	0.435	-0.7	0.441	0.5	0.438	0.0
Slovenia	0.512	0.508	-0.8	0.516	0.7	0.512	0.0
Spain	0.557	0.550	-1.2	0.561	0.7	0.557	0.0

Table 1: Gini coefficients for the net wealth distribution

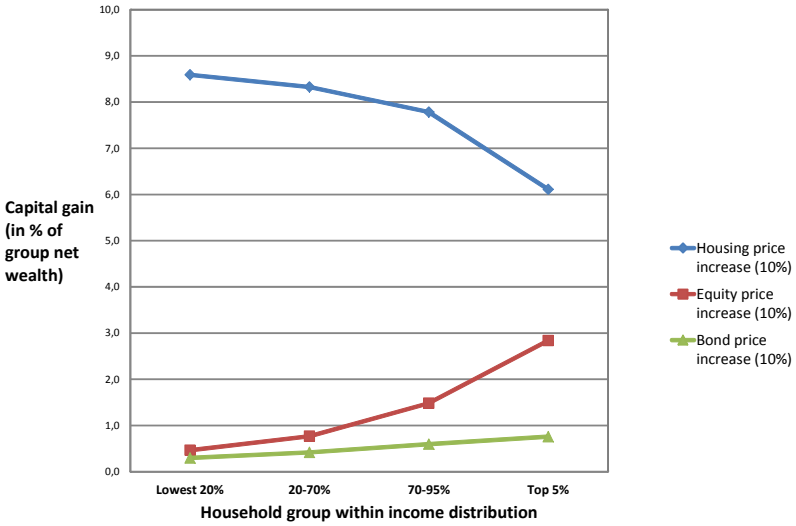

Figure 7: Capital gains across Euro Area income groups

4.3 Capital Gains Across the Income Distribution

Figure 7 depicts how capital gains are distributed across the household income distribution. The figure considers four broad household income groups: low income households (bottom 20% of the distribution), middle income households (the next 50% of the distribution), upper middle income group (the next 25%) and high income households (the top 5% of the distribution). In line with Figure 4, Figure 7 reports the sum of capital gains of a considered group divided by the sum of group net wealth. Figure 7 thus shows that the capital gains (relative to net worth) from housing price increases are larger the lower is the income group. The opposite is the case for equity price increases, while for bond price increases, the schedule is relatively flat. This shows that housing price increases tend to be larger (in relative terms) for low income households, while equity price are larger for high income households.

Appendix B.3 reports the capital gain numbers for individual Euro Area countries. It shows that the findings for individual Euro Area countries are very similar to that for the Euro Area as a whole.

4.4 Households' Asset Duration and the Distribution of Capital Gains

While the distribution of capital gains is of interest to understand whether or not households benefit from asset price increases, some of the considered wealth increases may not be relevant in welfare terms. This occurs, for example, whenever households do not intend to realize the capital gains and whenever the capital gains are ultimately temporary in nature, e.g., because monetary policy will eventually terminate purchase programs and normalize interest rates.

Long investment horizons may be particularly relevant for housing price increases and increases in the value of pension assets. The long investment horizons associated with these assets implies that persistent but ultimately temporary capital gains only compensate households for the low returns following the asset price increases, but leave overall household wealth at the time of the termination of the investment largely unchanged.[10] This in turn suggests that households who *do not hold* long dated assets in significant amounts tend to be losers in relative terms: these households fail to benefit from capital gains but face at the same time low returns on their future investments.

Table 1 identifies the households that invest insignificant amounts in long dated assets.[11] Long dated assets are defined as the sum of bond, equity and real estate holdings and 'insignificant' refers to an asset share of less than or equal to 10% of household net worth. As it turns out, more than 36 million households in the Euro Area fail to be significantly invested in long dated assets. These households fail to benefit from capital gains in noticeable amounts and have low median income and low median wealth. This contrasts to the sizable capital gains of households with larger exposure to long dated assets and their high median income and net wealth levels.[12] Overall, this shows that wealth and income poor households fail to benefit from asset price increases.

[10] Obviously, households still face a relative price change in terms of lower subsequent returns/interest rates, which can affect welfare.

[11] As before, we exclude households with negative net wealth from the analysis.

[12] There is little heterogeneity amongst the HH group with more than 10% in long dated assets. The capital gain, wealth and income numbers for household groups with 10%-90% and 90%-100% of long dated assets look very similar to that of the 10%-100% group.

Euro Area	**All HHs**	**HHs with long assets $\leq$ 10%**	**HHs with long assets $>$ 10%**
Number of HHs (in mlns)	130.1	28.2	101.9
Household characteristics			
Median HH net wealth (euro)	125,082	5,954	185,233
Median HH income (euro)	29,169	19,141	33,112
Median HH age	52	47	54
Capital gains (in % of net wealth)			
Real estate price increase (10%)	7.68	0.03	7.78
Equity price increase (10%)	1.44	0.04	1.46
Bond price increase (10%)	0.55	0.06	0.55

Table 2: Asset duration, capital gains and household characteristics

5 Conclusions

The capital gains from bond price, equity price and housing price increases have fairly different distributional implications in the Euro Area. The capital gains from equity and bond price increases tend to be highly concentrated among a fairly small set of households, while the capital gains from housing price increases are more widespread. While highly concentrated, the gains from bond price increases do not covary with the households net wealth or income position, unlike the capital gains from equity price increases. The latter are concentrated predominantly among high net worth and high income households. As a result, equity price increases significantly increase net wealth inequality in the Euro Area, while bond price increases leave net wealth inequality unchanged. Housing price increases significantly reduce net wealth inequality.

While the distribution of capital gains are of interest for assessing how they affect wealth inequality, it remains an open issue as to whether these gains actually lead to increased welfare dispersion among households. If households have long investment hori-

zons, as may plausibly be assumed for prime residences or pension wealth, then capital gains may be partly or fully compensated by lower future holding period returns. Changes in net wealth inequality then overstate the effects of capital gains on the dispersion of household utility. Investigating this issue further requires formal economic modeling of household consumption and investment decisions, which is beyond the scope of the present paper, but appears to be a fruitful avenue for further research.

A Data Definitions

The Household Finance and Consumption Survey collects detailed information on the households' assets and liabilities. From the assets side it covers the household main residence, other real estate, other real assets such as vehicles and valuables, business wealth, deposits, shares, bonds, private pension accounts, and mutual funds. The latter are further broken into categories according to the type of asset they predominantly invest in.[13]

For the purposes of our analysis, we define housing wealth the value of the household main residence, other real estate held by the household and the value of mutual funds investing predominantly in real estate. As equity holdings we consider the value of business wealth held by the household, the value of direct holdings in listed shares, the value of mutual funds investing predominantly in shares, and 21% of the value of private pension accounts. We define the value of bonds as the direct holdings of bonds, the value of the mutual funds investing predominantly in bonds plus 79% of the private pension accounts.

Household net wealth is provided in the survey data, as a derived variable, and has been computed as the value of total assets minus total liabilities.

[13] See further details mentioned in footnote 6.

B Tables for Individual Euro Area Countries

B.1 The distribution of individual capital gains

Country	bottom 5%	bottom 10%	bottom 25%	median	top 25%	top 10%	top 5%
Euro Area	0.0	0.0	0.0	0.0	0.4	2.1	3.8
Austria	0.0	0.0	0.0	0.0	0.0	0.7	1.9
Belgium	0.0	0.0	0.0	0.0	0.9	2.7	4.8
Cyprus	0.0	0.0	0.0	0.0	0.3	1.0	2.1
Finland	0.0	0.0	0.0	0.0	0.1	0.5	1.1
France	0.0	0.0	0.0	0.0	0.3	1.7	3.3
Germany	0.0	0.0	0.0	0.0	1.2	3.5	5.3
Greece	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Italy	0.0	0.0	0.0	0.0	0.2	0.9	1.7
Luxemburg	0.0	0.0	0.0	0.0	0.3	1.3	2.7
Malta	0.0	0.0	0.0	0.0	0.5	1.6	2.4
Netherlands	0.0	0.0	0.0	0.1	2.6	6.2	7.8
Portugal	0.0	0.0	0.0	0.0	0.0	0.1	0.6
Slovakia	0.0	0.0	0.0	0.0	0.0	0.2	0.6
Slovenia	0.0	0.0	0.0	0.0	0.0	0.2	0.4
Spain	0.0	0.0	0.0	0.0	0.0	0.3	0.8

Table A1: Individual gain distribution (in % of net wealth), 10% bond price increase

Country	**bottom 5%**	**bottom 10%**	**bottom 25%**	**median**	**top 25%**	**top 10%**	**top 5%**
Euro Area	0.0	0.0	0.0	0.0	0.4	1.7	3.3
Austria	0.0	0.0	0.0	0.0	0.0	1.4	3.8
Belgium	0.0	0.0	0.0	0.0	0.5	1.5	2.4
Cyprus	0.0	0.0	0.0	0.0	0.4	2.6	5.9
Finland	0.0	0.0	0.0	0.0	0.2	1.3	2.9
France	0.0	0.0	0.0	0.0	0.4	1.7	3.3
Germany	0.0	0.0	0.0	0.0	0.8	2.1	3.7
Greece	0.0	0.0	0.0	0.0	0.0	0.5	2.5
Italy	0.0	0.0	0.0	0.0	0.1	1.1	2.8
Luxemburg	0.0	0.0	0.0	0.0	0.2	1.2	2.1
Malta	0.0	0.0	0.0	0.0	0.2	1.5	4.5
Netherlands	0.0	0.0	0.0	0.1	1.0	2.1	3.1
Portugal	0.0	0.0	0.0	0.0	0.0	0.5	2.0
Slovakia	0.0	0.0	0.0	0.0	0.0	0.3	1.0
Slovenia	0.0	0.0	0.0	0.0	0.1	0.7	3.0
Spain	0.0	0.0	0.0	0.0	0.1	1.3	3.1

Table A2: Individual gain distribution (in % of net wealth), 10% equity price increase

Country	**bottom 5%**	**bottom 10%**	**bottom 25%**	**median**	**top 25%**	**top 10%**	**top 5%**
Euro Area	0.0	0.0	0.0	7.3	9.6	12.1	17.6
Austria	0.0	0.0	0.0	1.8	8.6	9.8	11.2
Belgium	0.0	0.0	0.0	7.5	9.6	13.4	17.8
Cyprus	0.0	0.0	5.7	9.3	10.5	14.6	20.1
Finland	0.0	0.0	0.0	8.2	10.0	18.2	31.4
France	0.0	0.0	0.0	6.6	9.4	12.3	17.8
Germany	0.0	0.0	0.0	0.0	8.5	11.4	16.6
Greece	0.0	0.0	5.1	9.1	9.9	11.4	15.4
Italy	0.0	0.0	0.0	8.3	9.4	10.0	11.8
Luxemburg	0.0	0.0	0.0	8.9	10.1	16.8	24.7
Malta	0.0	0.0	4.1	7.9	9.2	9.9	11.4
Netherlands	0.0	0.0	0.0	5.5	10.9	20.7	36.0
Portugal	0.0	0.0	0.0	8.5	9.9	14.1	21.0
Slovakia	0.0	1.9	7.3	9.0	9.8	10.0	12.4
Slovenia	0.0	0.0	7.1	9.4	9.9	10.3	12.1
Spain	0.0	0.0	7.1	9.4	10.0	14.2	19.8

Table A3: Individual gain distribution (in % of net wealth), 10% housing price increase

B.2 Capital gains distribution across net wealth groups

	HH net wealth position			
	Lowest 20%	**20-70%**	**70-95%**	**Top 5%**
Euro Area	1.0	0.6	0.5	0.6
Austria	0.2	0.3	0.3	0.5
Belgium	1.1	0.7	0.9	1.6
Cyprus	1.0	0.4	0.3	0.1
Finland	0.7	0.2	0.2	0.3
France	0.5	0.5	0.5	1.0
Germany	2.2	1.2	0.7	0.5
Greece	0.0	0.0	0.1	0.1
Italy	0.3	0.3	0.3	0.4
Luxemburg	1.0	0.4	0.3	0.3
Malta	0.9	0.4	0.6	0.2
Netherlands	3.5	2.5	1.4	1.3
Portugal	0.2	0.1	0.1	0.2
Slovakia	0.1	0.1	0.1	0.1
Slovenia	0.3	0.1	0.1	0.1
Spain	0.2	0.1	0.2	0.2

Table A4: Capital gains (in % of net wealth) across net wealth groups, 10% bond price increase

	HH net wealth position			
	Lowest 20%	**20-70%**	**70-95%**	**Top 5%**
Euro Area	0.6	0.5	0.7	2.9
Austria	0.1	0.3	0.9	4.6
Belgium	0.4	0.3	0.8	2.3
Cyprus	0.5	0.5	1.4	4.6
Finland	1.0	0.3	0.5	2.4
France	0.5	0.5	0.8	2.9
Germany	0.8	0.8	0.6	3.4
Greece	0.4	0.3	0.6	0.9
Italy	0.3	0.3	0.6	2.1
Luxemburg	0.7	0.3	0.4	1.0
Malta	0.2	0.3	1.0	5.8
Netherlands	1.7	1.1	0.8	1.2
Portugal	0.1	0.2	0.6	2.9
Slovakia	0.1	0.1	0.3	1.8
Slovenia	0.4	0.2	0.7	2.9
Spain	0.4	0.3	0.8	2.8

Table A5: Capital gains (in % of net wealth) across net wealth groups, 10% equity price increase

	HH net wealth position			
	Lowest 20%	**20-70%**	**70-95%**	**Top 5%**
Euro Area	6.1	9.4	8.3	6.0
Austria	1.9	7.1	7.4	4.2
Belgium	4.6	9.6	7.0	4.6
Cyprus	12.9	10.5	8.6	5.3
Finland	57.6	11.8	9.1	7.1
France	2.1	9.5	8.2	5.5
Germany	0.6	7.5	8.1	5.8
Greece	7.4	9.9	8.8	8.3
Italy	2.2	8.8	8.5	7.0
Luxemburg	9.8	10.9	8.7	8.5
Malta	3.0	8.3	7.6	3.5
Netherlands	28.5	11.9	8.7	7.0
Portugal	21.6	9.9	8.6	6.0
Slovakia	10.4	9.1	8.4	7.3
Slovenia	7.1	9.6	8.6	6.5
Spain	16.3	10.4	8.7	6.5

Table A6: Capital gains (in % of net wealth) across net wealth groups, 10% housing price increase

B.3 Capital gains distribution across income groups

	HH income position			
	Lowest 20%	**20-70%**	**70-95%**	**Top 5%**
Euro Area	0.3	0.4	0.6	0.8
Austria	0.3	0.3	0.4	0.4
Belgium	1.0	1.1	1.1	1.1
Cyprus	0.1	0.3	0.3	0.2
Finland	0.0	0.1	0.2	0.3
France	0.3	0.5	0.7	1.2
Germany	0.6	0.6	0.7	0.7
Greece	0.0	0.1	0.1	0.1
Italy	0.1	0.3	0.4	0.5
Luxemburg	0.2	0.2	0.5	0.2
Malta	0.3	0.5	0.4	0.5
Netherlands	1.9	1.8	1.4	1.5
Portugal	0.0	0.1	0.2	0.3
Slovakia	0.0	0.1	0.1	0.1
Slovenia	0.0	0.1	0.1	0.1
Spain	0.1	0.1	0.2	0.2

Table A7: Capital gains (in % of net wealth) across income groups, 10% bond price increase

	HH income position			
	Lowest 20%	**20-70%**	**70-95%**	**Top 5%**
Euro area	0.5	0.8	1.5	2.8
Austria	1.2	2.1	2.6	3.7
Belgium	0.2	1.0	1.2	2.4
Cyprus	1.0	2.3	2.1	4.6
Finland	0.2	0.4	0.8	2.9
France	0.9	0.8	1.2	3.0
Germany	0.9	0.7	2.3	2.9
Greece	0.2	0.4	0.5	1.3
Italy	0.4	0.3	0.8	2.7
Luxemburg	0.6	0.3	0.8	0.8
Malta	0.6	1.1	4.3	2.1
Netherlands	0.9	1.0	0.8	1.4
Portugal	0.2	0.7	1.1	3.4
Slovakia	0.0	0.2	0.7	2.5
Slovenia	0.8	1.0	0.9	1.7
Spain	0.2	0.9	1.2	2.6

Table A8: Capital gains (in % of net wealth) across income groups, 10% equity price increase

	HH income position			
	Lowest 20%	**20-70%**	**70-95%**	**Top 5%**
Euro area	8.6	8.3	7.8	6.1
Austria	6.9	6.3	5.8	4.9
Belgium	7.8	6.8	7.2	5.9
Cyprus	9.1	7.9	7.8	5.6
Finland	8.8	9.5	9.8	7.3
France	7.9	8.2	8.1	5.5
Germany	6.6	7.6	6.9	6.4
Greece	9.6	9.2	9.1	7.8
Italy	9.0	8.7	8.2	6.3
Luxemburg	8.9	9.9	8.8	8.8
Malta	8.0	7.4	4.8	6.9
Netherlands	8.8	9.0	9.9	7.8
Portugal	8.9	8.9	8.4	5.4
Slovakia	9.4	9.1	8.0	5.9
Slovenia	8.8	8.5	8.5	7.4
Spain	9.3	9.2	8.6	6.7

Table A9: Capital gains (in % of net wealth) across income groups, 10% housing price increase

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