EUROPEAN CENTRAL BANK
EUROSYSTEM

RESEARCH BULLETIN NO. 54

Quantitative easing did not increase inequality in the euro area

29 January 2019

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"Quantitative easing" refers to central bank purchases of assets such as stocks and bonds to increase the money supply when interest rates are too low for conventional rate cuts to provide further policy accommodation. Quantitative easing in the euro area through the ECB's asset purchase programme (APP) has stimulated economic activity and asset prices, affecting income and wealth inequality among households. It has decreased income inequality, mostly by reducing the unemployment rate for poorer households, but also, to a lesser extent, by increasing the wages of the employed. Quantitative easing has also helped to reduce net wealth inequality slightly through its positive impact on house prices.

During the recent years there has been a public debate about the effects of monetary policy on household inequality. An opinion piece published in the *Financial Times* in September 2015, for instance, argued that unconventional monetary policy increased inequality and "made the rich richer", as it boosted asset prices and financial wealth. Other commentators have pointed out that a long period of low interest rates reduces the income of savers holding interest-bearing assets, while benefiting younger households that are net borrowers.
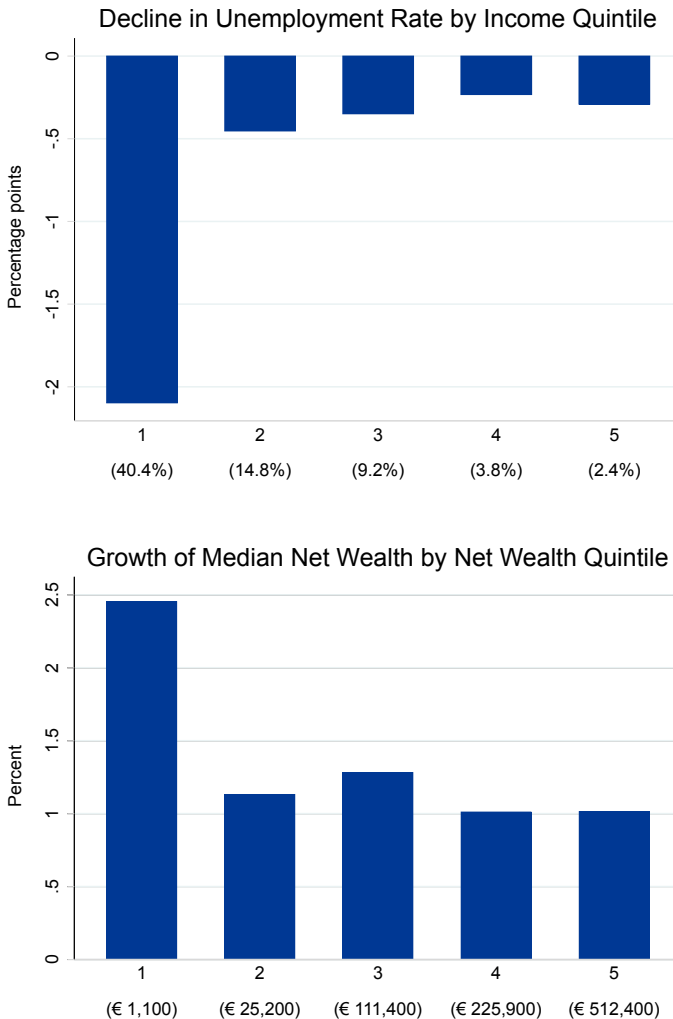
But when it comes to household inequality, monetary policy not only affects financial variables, such as the return to savings and the value of assets, but also employment, wages and incomes. These effects vary from household to household, depending on both the kind of financial assets owned, if any, and also – importantly – on the employment status of the adults in the household.

This article summarises a recent working paper that examines how the Eurosystem's quantitative easing has affected wealth and income inequality. The paper takes a two-stage approach. First, it estimates the macroeconomic outcomes of an aggregate APP "shock" (a sudden increase in the purchase of assets) for France, Germany, Italy and Spain. In a second stage, it distributes these estimated effects across individual households using the information on their assets and income from the Eurosystem Household Finance and Consumption Survey (HFCS).

The working paper studies the effects of an APP shock represented by an "exogenous" drop in the term spread – the difference between the long-term and short-term interest rates – via its effect on the long-term interest rate (as the short-term rate remained at its lower bound).[2] Specifically, the shock is assumed to reduce the term spread by 30 basis points, on impact.[3] The macroeconomic effects on GDP, inflation, wages, unemployment and asset prices are estimated using a multi-country vector auto-regressive model (VAR). The model includes three categories of asset prices: house prices, stock prices and interest rates (which determine bond prices). Then, the aggregate effects are fed into a micro-simulation model which estimates the effects of quantitative easing on the income and wealth of individual households.[4]

Two channels take centre stage when examining the impact of the APP shock on household income. First, some individuals become employed, generally experiencing a substantial increase in their income as a result. The probability of this depends on their demographics (such as their age, education, marital status and the number of children they have). Second, the wages of all employed individuals increase (by the amount estimated in the VAR model). In addition, the authors estimate the impact on wealth, assuming that households do not buy or sell assets because of the APP shock. So the change in household wealth is purely a result of the changes in the value of these assets (real estate, stocks, bonds) due to the APP's effects on asset prices.

Chart 1 Response of unemployment and net wealth to the APP

Decline in Unemployment Rate by Income Quintile

	1	2	3	4	5
	(40.4%)	(14.8%)	(9.2%)	(3.8%)	(2.4%)

Growth of Median Net Wealth by Net Wealth Quintile

	1	2	3	4	5
	(€ 1,100)	(€ 25,200)	(€ 111,400)	(€ 225,900)	(€ 512,400)

Note: Eurosystem HFCS and ECB calculations, Lenza and Slacalek (2018). The upper chart shows the decline in the unemployment rate in percentage points across quintiles of household income, four quarters after the materialisation of the APP shock. The lower chart shows the corresponding increase in median net wealth in per cent by net wealth quintile. The numbers in parentheses show the initial levels of the unemployment rate and median net wealth in each quintile, respectively. The results are reported for an aggregate of Germany, Spain, France and Italy. The bars in the two panels are ordered from the poorest 20% (leftmost) to the richest 20% (rightmost) of the income (upper panel) and wealth distribution (lower panel).

Let us first consider the effects on income, which work through changes in unemployment and wages. The APP shock substantially reduces the unemployment rate in the lower part of the income distribution. The

upper panel of Chart 1 shows how the aggregate decline in the unemployment rate is distributed across five income groups of households of equal size, defined as "quintiles". The chart displays the decrease in the unemployment rate across the five income quintiles, four quarters after the occurrence of the APP shock. The aggregate decline in the unemployment rate by about 0.7 percentage point (not shown in the chart) affects individuals very differently and mainly benefits the households with incomes in the lowest 20%. Their unemployment rate falls by more than 2 percentage points. By contrast, the unemployment rate in other income quintiles falls by less than 0.5 percentage point.

The labour market impact of the APP reduces income inequality. Changes in unemployment rates substantially affect household income: incomes increase considerably as households start earning wages (instead of receiving unemployment benefits). Mean income in the lowest income quintile rises by about 3%, while mean income in other parts of the distribution increases by about 0.5%. The reduction in the unemployment rate has a large impact on the bottom 20% of the income distribution and accounts for most of the total effect on income throughout the distribution (except for the top 20%). Overall, the APP shock described above improves the Gini coefficient (a common measure of inequality)[5] from 43.1% to 42.9%.

These results are obtained under the assumption that the bulk of the effects of the APP transmit to income through changes in unemployment and wages. What about an alternative scenario? Specifically, what if the APP is also allowed to increase income from financial investments?[6] Remarkably, the results remain the same. Indeed, the positive effects of the changes in financial income are clustered in the higher quintiles of the income distribution, but our estimates show that they barely affect the income distribution, because a relatively small share of the income of European households comes from financial sources.

Let us now turn to the wealth effects. The APP modestly increases household net wealth across the wealth distribution. As shown in the lower panel of Chart 1, four quarters after the occurrence of the shock, the median net wealth among households in the lowest net wealth quintile increases by 2.5%, while in the other quintiles it rises by around 1%. House prices play a key role in these changes, as housing makes up about 70-80% of total household assets in the euro area and this share is roughly the same across the wealth distribution (possibly with the exception of the very top tail). In addition, the effect on stock prices appears to be small and temporary. The increase in wealth among the lowest quintile is partly because these households have higher stocks of debt. Overall, the APP only produces a minimal improvement for net wealth inequality.

In conclusion, an APP shock in the euro area decreases income inequality. It also decreases wealth inequality, though to a negligible extent. Notice however, that monetary policy has only a temporary impact on the economy, so it is likely that in the long run the effect on the Gini coefficient would fade away. This suggests that in the long run other factors, such as globalisation or how particular tax systems redistribute income and wealth (for example, via the progressivity of taxation), are more important drivers of inequality than monetary policy. At the same time, the results do indicate that monetary policy helped support vulnerable households during the last financial and economic crisis.

References

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[1] Disclaimer: This article was written by Michele Lenza and Jiri Slacalek (Head of Section and Principal Economist, respectively, in the Directorate General Research, Monetary Policy Research Division). It is based on a paper entitled "How does monetary policy affect income and wealth inequality? Evidence from quantitative easing in the euro area". The authors gratefully acknowledge the comments of Maarten Dossche, Paul Dudenhefer, Michael Ehrmann, Geoff Kenny, Silvia Margiocco, Alberto Martin and Zoë Sprokel. The views expressed here are those of the authors and do not necessarily represent the views of the European Central Bank or the Eurosystem.

[2] "Exogenous" is a term that refers to something that happens outside the economic model.

[3] Notice that the assumption of a 30 basis point drop in the term spread is to be considered as just a normalisation to pin-down the size of the APP shock, and not an estimation of the total effect of all the APP announcements on the term spread in the euro area. However, Altavilla et al. (2015) find that the first APP announcement in January 2015 is associated with a 30-50 basis point drop in the euro area

ten-year sovereign bond yields, which is consistent with the size of the shock assumed here. Of course, the subsequent APP announcements have further affected the term spread.

[4] The empirical methodology for the micro-simulation follows Ampudia et al. (2016).

[5] A decline in the Gini coefficient means a decline in inequality. The index ranges from zero (perfectly egalitarian distribution) to 100% (perfectly concentrated distribution).

[6] Financial income includes income in the form of interest, dividends and income from renting real estate, and, in the paper, it is measured by either profits or net property income. The effects of the APP shock on aggregate financial income are estimated as described above for the other aggregate variables.