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No Gender, Please, We're Central Bankers: Distributional Impacts of Quantitative Easing

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Abstract

While a large body of literature examines the impact of quantitative easing (QE) on the financial sector and discusses the thereby adjusted roles and mandates of central banks, distributional impacts of QE had been hardly reflected. This paper critically analyses the current state of understanding of distributional impacts of QE in the course of the global financial crisis from a theoretical perspective. We identify various transmission channels of QE which jointly result in quantity, price and structural effects on the balance sheet of financial intermediaries in the respective economies, based on which we assess distributional impacts of QE on households' income and wealth. In contrast to the literature we find that QE is not neutral in the long term. Due to the asymmetric power of central banks, QE increases wealth inequality and has ambivalent effects on income inequality. Negative impacts of economic downturns in particularly for low-income households are not completely reversed in expansionary phases; to that effect rising wealth and income inequality show hysteresis effects which are not mitigated by QE. A second finding regarding the theoretical framework is that there is a structural neglect of incorporating gender impacts of QE in the analysis; accordingly, gender-related impacts are neither considered in empirical studies nor taken into account in policy formulation and policy design. These blind spots need to be explored by future research in order to identify undesirable side effects of monetary policy.

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Of course, central banks are not charged with the task of addressing inequalities in the distribution of wealth, income or consumption – nor are they dealing with the broader challenge of promoting economic justice for society as a whole.

Yves Mersch, ECB Executive Board (2014, p.1)

And if Piketty is right, inequality trends are self-perpetuating as wealth begets wealth. In effect, central banks stand accused of having provided an extra spin to the Piketty cycle. It is worth viewing this claim in context.

Andrew Haldane, BoE Executive Director Financial Stability (2014, p.2)

1 Introduction

Distributional impacts of monetary policy have been indeed a topic in economic theory and policy, though rather within development economics and not within mainstream economics. Particularly during the 1980s when Latin America was plagued with hyperinflation, governments and central banks inspired by structuralism and neo-structuralism fell back on relatively comprehensive indexation of goods' and services' prices and of wages in order to prevent distributional impacts on private households of both hyperinflation and subsequent disinflation attempts via monetary policy.

Such an indexation might mitigate distributional impacts on flows like income, transfers and pensions; however, monetary policy in disinflationary periods also affects the balance sheets of private households and thus changes absolutely and relatively the creditor-debtor relationships. Latin American governments and central banks had to realise that these changes cannot be considered neutral in terms of (wealth and income) distribution; they finally gave up the chimera of distributional-neutral monetary policy.

In contrast, distributional impacts of central bank policy in advanced countries had received little attention until recently. Only with the persistence of central bank interest rates at the zero lower bound and the consecutive switch of major central banks to unconventional monetary policy did distributional impacts of quantitative easing (QE) increasingly enter the policy and economics agenda. This is reflected in a rise of speeches and papers by central bank governors,

central bank board members and affiliated researchers on the topic of distributional impacts of QE.

As Mersch (2014, p.1), by then a member of the ECB's Executive Board, put it: "(...) an unusual topic of central bankers – namely the interactions between monetary policy and inequality", acknowledging that "(A)ll economic policy-makers have some distributional impact as a result of the measure they introduce – yet until relatively recently, such consequences had been largely ignored in the theory and practice of monetary policy."

Theoretically, monetary policy (MP) - be it conventional or unconventional – could be said to have no distributional impact on income and wealth only if and when: (i) MP has identical, understood as proportionate, impacts across all possible households (including those who receive social benefits and pension payments) as well as across assets and debt, so that independent from the precise income and wealth distribution every household is impacted exactly to the same relative extent; or (ii) if all employment, wages and salaries, wealth and debt components are equally distributed among private households; in that case MP would impact all households to the same relative extent. Both these premises do *not* hold. Thus, we suggest that MP changes the relative distribution of income and wealth of households, at least temporarily.

If this reasoning is correct, then monetary policy is likely to have also gendered-differentiated effects on employment, income, consumption, savings and portfolio decisions which in turn have feed-back effects on economic growth. There are only few papers that have explored at all the impact of monetary policy on gendered outcomes and those dealt with restrictive monetary policy. What is missing in the literature are studies that focus on unconventional monetary policy, including QE, that were implemented in response to the global financial crisis and their distributional effects on women and men (Young 2018).

In the following we analyse from a theoretical perspective (i) to what extent distributional impacts of QE are not neutral and display a bias against low-income households, admittedly a less than perfect proxy of female households, and (ii) whether this effect will prevail in the long term even if MP at some point in time in the future will revert to rather conventional measures again. Although we discuss theoretically distributional impacts of QE, when referring to empirics the paper shows a certain bias towards the euro area.

We proceed as follows: First, we discuss the various transmission channels of QE in order to identify the quantity, price and structural effects QE has on the financial sector. In section 3 we discuss distributional impacts of QE on wealth inequality based on changes in asset prices; this will be followed in section 4 by an analyse how QE will alter income distribution and its components. Section 5 will present intermediate results and our preliminary assessments.

2 Transmission Channels of QE

Quantitative easing in a narrow sense is the expansion of the central bank's balance sheet by a purchase of high quality, low risk premium bonds. QE in a broader sense is referred to as "large scale asset purchases" (Beck et al. 2019, p.3; Ryan and Whelan 2019, p.1; Avalos and Mamatzakis 2018, p. 3) including the purchase of lower quality, higher risk private bonds (so-called credit easing) and the purchase of government bonds. However, it is difficult to differentiate analytically and empirically between the distributional impact QE in a narrow sense and on the other hand that of credit easing and the purchases of government bonds. Accordingly, in the following we refer to QE as bond purchases by central banks expanding the quantity of the assets in their balance sheets independent of whether the bonds are issued by private or public market actors and independent of the type of risks are actually attached to these bonds.¹ In contrast, unconventional monetary policy – as QE is sometimes interchangeably called – also covers forward guidance and negative real interest rates (for instance Avalos and Mamatzakis 2018) and will hence not be used synonymously.

The objectives of QE are threefold: First and foremost with QE central banks buy time for the financial sector, in particular the banking sector, by offering sufficient liquidity at low cost and longer-term maturities. The time should be used by the financial sector to adjust to the financial crisis and to restructure their balance sheets in order to improve both their liquidity and solvency situation so that the probability of illiquidity and insolvency throughout the financial system will decline and the resilience of the banking system will increase. Second, QE aims at the recovery of activities of the real economy which had been subdued during the course of the crisis. And third, with QE central banks intend to mitigate deflationary tendencies within the

¹ For an overview of sequence, volume and content of the different asset purchase programmes of the ECB see Ryan and Whelan 2019, p.41.

economy. While central banks can target the first objective directly, central banks are dependent on the financial sector and the company sector to accomplish the second and third objectives.²

We can identify several domestic transmission channels of QE (Chen et al. 2012: pp. 236ff).³ The first group of transmission channels has a quantity effect on the market. The liquidity channel and the bank lending channel increase the supply of liquidity and credit to the banking sector and subsequently to the household and company sectors. The bank lending channel refers to the additional liquidity directly made available to financial intermediaries by the central bank through its bond purchases and the increase of its balance sheet. Accordingly, if banks respond positively to this central bank offer, they are able to expand credit supply to the private and the public sector. Assuming that financial intermediaries perceive the current QE as persistent and that the central bank continues to buy bonds in the future, their necessity and the exigency to hold extra liquidity and high reserves in an otherwise uncertain market constellation will be reduced. Thus, with the liquidity channel in motion financial intermediaries are able to provide this extra liquidity to the private sector either in form of an expanded loan portfolio or enlarged bond purchases.

The second group of transmission channels has a price effect in form of either reducing borrowing costs or by increasing asset prices. The traditional interest rate channel reduces long-term nominal yields and real interest rates on the bond markets directly through asset purchases made by the central bank thus facilitating borrowing by the private and the public sector.

In contrast, the functioning of the expectation channel rests on the confidence of financial market actors in the reported commitment of the central bank to continue QE in the future. How strong this expectation channel affects financial market actors and accordingly their activities was impressively shown by the comments of then ECB president Mario Draghi when declaring in July 2012: “Within our mandate, the ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough.” After this announcement speculations against the euro stopped altogether. If the central bank is able to communicate a credible message and the expectation channel is actually operating, then the central bank is in a position to influence expectations of market actors without necessarily changing its policy –or even

² Assuming fiscal policy is passive as is mostly the case in the euro area. If fiscal policy is active in the sense of expansionary policy and government bonds are indiscriminately purchased by the respective central banks, then central banks could directly target the second and third objective via co-ordination with fiscal policy.

³ For international spillover of QE see Kolasa and Wesolowski (2018), Anaya et al. (2017), Tillmann (2016), or Chen (2012).

without having to resort to any activity, as indicated by the declaration of Mario Draghi. In the first instance it is the confidence of market actors in the announcement and only in a second step the specific activity of the central bank, which influences expectations. Accordingly, the central bank's announcement to pursue QE and in general a monetary policy sensible to risks in the financial system might reduce risk premiums and thus also long-term yields and interest rates as well as stabilise asset prices in the balance sheets of financial market actors.

The asset price channel of QE impacts –not surprisingly– asset prices. Direct bond purchases by the central bank increase the demand for and the prices of those assets. In addition, financial market actors might use the liquidity which the central bank provides to the market via its QE operations, to purchase other assets, e.g. equity or real estate. Restored and increased asset prices on a broad and comprehensive scale in the economy, would improve the balance sheets of asset holders which are financial intermediaries, including banks, but also certain companies and private households. Stronger balance sheets of market actors in turn could encourage stronger credit supply by financial intermediaries and stronger credit demand by companies and private households.

The third group of transmission channels has a structural effect on portfolios of market actors. Due to QE and both the liquidity and price effect of the first and second group of transmission channels, the rates of returns on assets decline across all risk categories. Thus, if market actors intend to preserve a certain rate of return on their portfolio, the liquidity provided by the central bank will be used to purchase riskier assets. Hence, QE involves not only a change in absolute demand for nominal or real assets, but also modifies relative demand for nominal and real assets which differ according to maturity, risk, liquidity and rate of return. The portfolio balance channel of QE impacts the portfolio decisions of market actors and results in changes of both size and composition of private portfolios facilitating the financing of more risky investments and at the same time reducing endogenously the riskiness of these investments.

In sum, QE displays wide quantity, price and structural effects on the balance sheets of financial intermediaries and to some extent of the company and private household sector via a change of supply of and demand for credit finance and assets.

3 Distributional Impacts of QE on Wealth

Some authors emphasize wealth losses and thus a reduction of wealth inequality at the beginning of the global financial crisis. Mersch (2014, p. 4f) indicates that within the euro area high-income households experienced the largest decline in wealth until 2013. The Federal Reserve System observes a similar development for the US (Parker 2014); the long-term trend during the last decades towards increasing income and wealth inequality had been halted, though only for the first years of the global financial crisis and with a recovery resulting in “(...) significant income and wealth gains for those at the very top and stagnant living standards for the majority” (Yellen in Parker 2014, p. 4).

In contrast, Broadbent (2018, p. 10) assesses that even if asset prices were raised due to QE, the resulting increase of wealth inequality had been counteracted by the decline of income inequality due to higher employment. And he (2018, p. 7) concludes: “Equity and house prices are in real terms still comfortably below their pre-crisis levels; inequality hasn’t risen – nor, according to the most detailed analysis available, did easier monetary policy have any net impact on it.” His colleague from the Federal Reserve Bank of St. Louis comes to a similar conclusion; though acknowledging that equity prices had actually been influenced by QE, Bullard detects only a normalisation of equity prices towards the level of 2008. “To me, this suggests that quantitative easing had no medium-term implications for the U.S. income or wealth distribution—it is only as good or bad as it was before the crisis” (Bullard 2014, p. 8).

However, according to Fontan et al. (2016) most central bankers meanwhile accept that QE has exercised distributional effects on wealth and that these effects are not negligible. In the following discussion we mainly concentrate on the change of asset prices and do not take into account other effects of unconventional MP which could also have an impact on wealth inequality; these effects include for instance the reduction of borrowing costs for loans as will be discussed in the subsequent section, the increased access to finance and the subsequent altered leverage, the change in composition of balance sheets due to an increase of risk appetite and the accumulation of riskier assets which all might have a positive effect on affected households balance sheets.⁴

⁴ For those effects see Monnin (2017), Domanski et al. (2016), Bullard (2014), Mersch (2014).

Central banks' increased asset purchases have boosted asset prices; intuitively we would conclude that given the uneven distribution of assets across private households and with higher-income households accumulating a disproportionate share of total assets, QE increases wealth inequality. However, it seems to be difficult even for central banks to quantify the impact of QE on wealth inequality. "It is harder still to gauge the impact of monetary policy measures on asset prices. But the facts are striking. Equity prices are almost 90% higher than in 2009 when QE commenced in the UK. Corporate bond prices are over 40% higher and government bond prices 15% higher. In the US, the numbers are 120%, 30% and 12% respectively. In other words, the wealth, as well as the income, pie would most probably have been materially smaller absent extra-ordinary monetary stimulus" (Haldane 2014, p. 2; also Monnin 2017, p. 3, Mersch 2014, p. 4). However, as we will see below, an increasing pie across private households does not exclude a rise in wealth and income inequality if the shares of higher-income quintiles are increasing stronger and faster than those of lower-income quintiles.

Another issue about which there is no broad consensus among authors comprises the precise evolution of wealth inequality across income quintiles since the outbreak of the global financial crisis. "The combination of heterogeneous asset returns and heterogeneous asset portfolios makes it difficult to assess the impact of monetary policy on capital income inequality" (Monnin 2017, p.3). Changes in wealth inequality within an economy depend on (i) the composition of nominal and real wealth among these quintiles and on (ii) which asset class(es) mainly benefited from QE which should be reflected in a rise of the corresponding asset price.

Theoretically, the composition of the wealth or the structure of the portfolio might vary across countries due to their taxation system and in general to the extent of their economic and social policy targeting inequality, but also due to the precise design of their financial markets (e.g. bank-based versus capital market based system) and their financial market regulation. Interestingly, for the four biggest euro area members plus the UK and the USA Domanski et al. (2016, table 2) find that bonds, stocks and mutual funds all figure more prominently in the portfolio of high income-quintiles than in low-income quintiles; these six countries commonly share this result although they display differences in their financial systems and heterogeneity in terms of their social policy.⁵ A disproportionately higher share of real estate assets in total wealth of higher-income quintiles can only be identified for Germany and France, while lower-

⁵ Another strand which has not been followed up in research, yet, concerns the analysis of the correlation between taxation policy, social policy and public debt with the precise distribution of financial assets and composition of wealth across income quintiles.

income quintiles in these two countries plus Italy and the UK display a higher share of savings deposits in their balance sheets than higher-income quintiles.

Domanski et al. (2014, p. 55f) and Adam and Tzamourani (2016) suggest that it is the boosting of equity prices which drives wealth inequality in the euro area in the course of unconventional monetary policy. The reasoning which is based on empirical survey and analysis is twofold; first, similar to the USA and the UK equity prices in the euro area have also risen stronger on average than prices of other assets like sovereign and corporate bonds or real estate; and second, equities are highly concentrated in the top-income quintile. Both factors taken together bring about a rise in wealth inequality which is stronger in its extent than corresponding price increases in other asset classes. Increases in housing prices benefit a higher share of population than a rise in equity prices; thus the effect on wealth inequality is cushioned or –should real estate assets (including mortgages) strongly figure in the balance sheet of lower-income households – might even result in a decline of wealth inequality. Although Domanski et al. (2014, p. 56) assess that changes in equity prices are rather of a cyclical nature, while housing prices follow a long-term trend, including non-cyclical boom and busts, which might persist even after QE levels out. However, it remains unclear on what exactly this argument is based.

In contrast, both authors conclude that the negative distributional impacts of QE via bonds are moderate. Although bond prices rallied due to QE, the explanation rests on the relatively similar composition of financial wealth in terms of fixed nominal assets: Monnin (2017, p. 6) following Adam and Tzamourani argues: “Winners from capital gains in bonds are spread evenly across both the income and wealth distributions; thus, capital gains in bonds do not have a material impact on inequality.” And Domanski et al. 2014 (p. 58-59) argues very similarly that “(I)n particular, rising values of households’ bond portfolios have not been associated with significant changes in wealth inequality. This is not surprising, given that the differences in the holdings of fixed income claims between “richer” and “poorer” households are generally relatively small”.

However, according to our assessment this interpretation is biased. Fixed income claims comprise fixed income bonds and certain derivatives, but also certificates of deposits, saving accounts and money market funds, with bonds and derivatives rather concentrated in the portfolio of high-income households and saving accounts and other fixed-term deposits rather concentrated in those of low-income households. While prices for bonds and derivatives have

increased in the course of QE with a positive effect on the balance sheets of the corresponding wealth owner, holders of savings accounts and other fixed-term deposits have experienced stagnation due to the low or even negative interest rates; added up the opposing effects might just net out. To prevent such a biased result, the empirical analysis would have to differentiate between fixed income claims in the form of bonds and fixed income claims in the form of savings or other fixed-term deposits.

In contrast to Domanski et al. the ECB (2017) provides a slightly different narrative. She stresses first that the distributional impacts of QE should take into account mainly the period from mid-2014 on as only since then the ECB's Asset Purchasing Programme showed effects on asset prices. She also emphasized to take into account the varying structure of portfolios across income groups to assess distributional impacts of QE. "Euro area households that hold financial assets, such as stocks and bonds, are strongly concentrated at the top end of the net wealth distribution. As such, only a fairly small subset of the population benefits from capital gains in equity and bond markets; three-quarters of the population do not benefit at all."

Secondly, the ECB estimates the impacts of how the value of wealth changed since mid-2014 taking into account only the changes of asset prices with housing prices increasing, bond prices moderately rising and equity prices even falling (p. 50). According to this estimation household net wealth has increased for all income quintiles, but the highest-income quintile has been able to increase its net wealth during these two years under consideration by almost 30 per cent, while the lowest-income quintile has increased its net wealth by only 4 per cent in the same period (Chart C, p. 50). Thus, based on these estimations we have to conclude that as a result of the ECB's QE the wealth inequality in the euro area has strongly increased.

4 Distributional Impacts of QE on Income

The core argument of QE having positive distributional impacts on income rests on the successful operation of the traditional monetary transmission mechanism plus a deduction: Due to reduced borrowing costs and increased credit supply aggregate demand in the economy will also increase resulting in a rise in production and thus employment – so far the traditional line of reasoning – and thus automatically reduce income inequality (e.g. Broadbent 2018, p.7, ECB

2017, p. 48ff, Monnin 2017, p. 3, Mersch 2014, p.2).⁶ A slightly different version of that argument is that the rise in unemployment during the crisis would have been higher without QE (Broadbent 2018, p.7), so the increase of income inequality is dampened by this kind of MP.

With reference to both the conventional and unconventional MP, the ECB (2017) states “These measures have been very successful in easing overall financial conditions and underpinning the outlook for real economic activity and inflation in the euro area.” (p. 48); she furthermore assesses the overall macroeconomic effects of her policy as generating “(...) positive distributional effects over the medium term related to boosting aggregate demand, lowering unemployment and contributing to price stability, all of which tend to reduce inequality” (ECB 2017, p. 50).

Several authors emphasise that in particular employment of low-income groups would have been created in the course of QE (e.g. Broadbent 2018, ECB 2017, Monnin 2017, Mersch 2014). “Job creation should benefit poorer households in particular, as their employment situation is most sensitive to the state of the economy” (ECB 2017, p. 51.). Again this follows a kind of deduction; from the fact that low-income households are the least protected and the most vulnerable group affected by business cycle fluctuations and economic crises authors fall back to a reverse conclusion that this particular group must be the first to benefit from an upswing according to a first-out, first-in logic. To support this reverse conclusion, these authors cite several empirical studies on labour market response in the course of QE which indeed indicate an above average increase in employment by low-income households.

There might be several reasons why low-income households expand their labour supply disproportionately and ahead of middle- or high-income households. One reason is that the financial buffer to smooth harsh economic periods is low or even non-existent within low-income households; thus, this group cannot afford to be out of work for a longer time. Second, public social transfers to mitigate the negative effects of unemployment might be limited both in amount and in time, so this group without much of a financial buffer has strong incentives to take up employment before public transfers finally run out. And a third explanation might be

⁶ The debate both within academia and policy makers about unconventional MP in advanced countries is inward-looking. QE could result in a depreciation of the domestic currency and thus induce an increase in export demand and thus in aggregate demand. This rather mercantilist impact will not be discussed here, although from a global perspective it definitely merits a comprehensive analysis.

that the company sector actually offers jobs at the lower wage end to which middle- and high-income households do not respond as quickly as low-income households.

Independent from the reasons why rather low-income households (and middle-income households who fear the social descent) would take up employment first in the course of expansionary conventional and unconventional MP, it is not correct to deduct that income inequality would decline solely due to this kind of MP. For this conclusion we would need to know the level of wages and salaries at which these households re-enter the labour market. Only if their wages and salaries were higher as before the crisis (and working conditions had not deteriorated), absolute income inequality would have been reduced.

However, since the 1980s in the USA and the 1990s in Europe the phenomenon of the working poor expanded; a wage in the formal economy has been less and less sufficient to finance a decent life. Thus, more and more private households have been forced to accept two or sometimes even three jobs, just to survive and pay their bills. This long-term trend of increasing numbers of working-poor households can certainly not be attributed to QE in the course of the global financial crisis, but QE was not able to stop or reverse this trend, either.

An economic crisis or downturn negatively affects middle-income households, too, part of which descends in the course of the crisis into the segment of rather lower-income households. If QE should actually reduce income inequality we would expect that middle- and low-income households experiencing a social decline during the crisis are able to reverse that development and regain their former social status. According to our knowledge there is no empirical study demonstrating this argument.

Assuming that lower-income households benefit in terms of employment and wages earlier and stronger from QE than other households, this would reduce not only relative income inequality, but also consumption inequality (e.g. Mersch 2014 p. 5, ECB 2017, p. 51). Consumption inequality rates spending opportunities by households; this comparison is based on household-specific price indices which take into account that households of different income levels experience different prices of demanded goods and services.⁷ Reduced consumption inequality would endogenously enforce the aggregate-demand increasing effects of QE as low-income households are known for having a higher propensity to consume.

⁷ For a discussion of consumption versus income inequality in the US see Attanasio/Pistaferre (2016).

However, the zero-lower bound (ZLB) could have thwarted these positive effects; declining interest rates burden in particular those households who hold and accumulate their savings rather in current accounts, credit card deposits and savings deposits and to a much lesser extent in more sophisticated nominal assets. We suggest that this is the case for lower-income households who prefer to have assets which could be accessed and liquidated relatively easily given their precarious income situation. Given this background, we disagree with the following general statement: “To the extent that savers are generally wealthier than borrowers, this will generate a reduction in consumption inequality” (Mersch 2014, p. 2) - for two reasons. Whether savers are actually wealthier than borrowers depends on which other nominal and real assets households own; there is a possibility that net borrowers have real assets so that their net wealth is higher than those households who display positive net savings and no loans, but no real assets either.

But even assuming for the sake of the argument that savers are wealthier than borrowers, this does not necessarily reduce consumption inequality within the overall economy. According to our assessment this proposition of a shrinking consumption inequality due to QE can only refer to relative changes *within* the group of lower-income households. As mentioned above low-income households disproportionately hold their savings in current accounts, credit card deposits and savings deposits; only then would QE favour net borrowing households over net saving households still assuming that financial intermediaries reduce both passive and active interest rates proportionately. Thus, due to QE consumption inequality would decline within that group of lower-income households with a high proportion of liquid nominal assets. “*Relative winners have included debtors, whose borrowing costs have collapsed. Relative losers are likely to have included savers reliant on bank deposits for income, due to falling bank deposit rates*” (Haldane 2014, p.2, emphasis in the original).

With the emergence of the working poor mentioned above we also observe a rise in private household debt of low-income households who have not been able to pay their bills with their wages and thus are piling-up credit-card and consumer debt and more recently student loan debt. Thus many low-income households have increasingly evolved into net debtors. With financial intermediaries passing on the lower central bank interest rates to them, their borrowing costs decline and hence they benefit from QE and increasingly so with rising debt levels. So,

within the group of low-income households net borrowers would benefit more from QE than net savers and thus might reduce consumption inequality within that income group.

However, taking into account the overall economy, we doubt the validity of the above cited proposition that QE reduces consumption inequality as a result of its favouritism of borrowers over households with saving deposits – a perception which is widespread within central banks. In comparison with low-income households middle- and high-income households hold a relatively lower share of their nominal wealth in current accounts, savings deposits and credit card deposits; a higher share of their wealth will be in the form of equity, bonds, derivatives and real assets all of which experience price increases in the course of QE which overcompensate the interest rate declines.

QE benefits households with portfolios of equities, bonds, derivatives and real assets stronger than households with current account, credit card account and savings account deposits. In other words, in a comparative perspective QE would afflict lower-income households with savings deposits stronger than middle- and higher-income households with rather financial assets and loans and therefore would increase consumption inequality across income groups and in the overall economy. The ECB (2017, p. 48) finally ascertains with the euro area in mind that “(T)he household sector, often thought to have lost out heavily given its net saver position, has in fact recorded only a mild loss in net interest income.” There is no reason why we should perceive the stated mild loss to be equally distributed throughout all income groups; in contrast we suggest that there is rather a concentration of losses in the bottom third and on the other hand a concentration of gains in the upper third due to the different structure of their asset portfolios.

Finally, there are also income impacts as a side effect of the distributional impact of QE on wealth. Households with nominal and real assets whose prices increase as a result of QE experience an improvement of their balance sheets. These households might use this improvement to increase consumption and thus again endogenously assist the aggregate-demand increasing effects of QE which – in a second effect – would create employment and thus benefit low-income households. However, Saiki/Frost 2014 (p. 11) show for Japan that unconventional MP which resulted in a rise in asset prices rather increased income inequality: “Higher asset prices benefit primarily upper incomes, who hold a larger amount and share of overall savings in equities, and thus benefit from greater capital income.”

5 Intermediate Results and Preliminary Assessments

In our discussion we focused on distributional impacts of QE on income and wealth inequality due to changes of asset prices. Overall, there is no clear-cut picture. There are several reasons for that: (i) Empirical studies do not qualify or quantify all of the potential impacts of QE, but rather focus on certain aspects, so that these studies more often than not lack a comprehensive evaluation. (ii) Even if all potential impacts of QE are taken into account, these impacts might not only vary slightly across different countries. This is particularly important when analysing the ECB's QE which addresses not only different countries, but also segmented financial markets with markedly different balance sheet structures of financial intermediaries, private households and companies as well as still varying financial market regulation and diverging taxation policy. (iii) Even if the empirical survey explores only one country and one homogenous financial market, its results depend on the period it takes into account. The evolution of the global financial crisis and thus MP responses to it were subject to different phases; accordingly QE might have different impacts on income and wealth as market conditions were different in different phases. (iv) And finally, even if we agree on the analysis of all potential distributional impacts in one country within a specific period, different authors display different assessments about whether the effects identified are long-lasting and persistent or rather of temporary nature and will disappear if QE levels out.

Under these limitations, the overwhelming majority of authors, including ourselves, suggest that in the short run MP is not neutral and that there are indeed negative distributional effects of QE on wealth inequality. “When the central bank cuts policy rates or buys assets, and hence depresses interest rates across markets and maturities, there is an inevitable redistribution of financial income across sectors and households according to their net financial position, i.e. whether they are net savers or borrowers” (ECB 2017, p. 48).

Asset price increases are a direct result of central banks' bond purchase programmes. Central banks execute direct activities on the demand side of private and public bond markets, which are correlated with other asset markets. Thus, we certainly know that wealth owners directly and –due to the spillover into other asset markets– also indirectly benefit from these interventions, though differently so as assets are not evenly distributed within societies.

However, in contrast to the majority of (little) existing literature on distributional impacts of QE we suggest that QE has only ambivalent effects on income. We explained our objections to

the first-out, first-in line of reasoning with all the reservations. But there is an additional, more fundamental argument which impairs this otherwise perceived unequivocal correlation between QE and economic recovery: Central banks dispose only of asymmetric power. Central banks following an expansionary policy stance can only offer more liquidity to financial intermediaries, but central banks are not in the position to enforce their policy on the respective banking system and company sector.

The perceived positive effects of QE on income and consumption in particular of lower-income households require first that financial intermediaries accept the offer by the central bank. Only when financial intermediaries use the liquidity offered by the central banks not to deleverage, but to expand their own balance sheet, reduce active interest rates and increase low cost credit supply to the company and household sectors, an increase in production is possible which then might benefit in particularly low-income households.

Recent research finds that euro area banks have indeed responded to the ECB's QE in form of the Asset Purchase Programme by actively managing their excess reserve holdings, however not in first instance towards direct loan creation to the real economy: "Examining the adjustments made by banks that have successfully "leaned against the wind" of the aggregate upward trend in reserve holdings, we find strong evidence that banks are carrying out this adjustment by adding to their security holdings and paying down a broad range of funding sources" (Ryan/Whelan 2019, p. 37). Hence, the perceived employment-generating effects of QE in general and the positive impacts of QE on income and consumption of low-income households which is frequently found in the literature are not at all automatically triggered in the euro area. In contrast, these findings rather support the view that QE induces activities of financial intermediaries which stay within the financial sector and that leakage to the real sector is limited.

But even if there is an increase of production and with this a rise in aggregate demand –for instance triggered by higher exports– it will not automatically result in an expansion of employment. Only if the company sector perceives the current state of the market positively and this to persist next year and the year after, the company sector will increase its demand for labour. Otherwise there will be no expansion of employment in terms of new jobs created, but rather an increase of delivering time, expansion of working time of already employed staff, more imports and higher prices. And a persistence of unconventional MP hitting the ZLB and

continuous QE might rather cause pessimistic or at least Fabian expectations with limited positive effects for the real economy.

Epstein/Montecino (2015, p.2) inquire “What is striking in the current debate is this: in all the historical cases mentioned earlier, it is high interest rates and restrictive monetary policy that are indicted as transferring income from the poor to the rich, whereas in the current period, the accusation is that it is low interest rates and expansionary monetary policy that is making inequality worse. Can both of these claims be true?”

They can be true if the widespread fallacy that central banks are omnipotent and are able to impose their policy on the markets is given up. A central bank exercising a restrictive MP can always reduce liquidity, enforce increasing borrowing costs and rise reserve requirements. Financial intermediaries have no other option but to follow this policy, increase their active interest rates and reduce credit supply. The only way to evade the restrictive policy of the domestic central bank requires financial intermediaries to indebt themselves abroad and maybe to accumulate a currency mismatch in their balance sheets. But as long as financial intermediaries refinance themselves on the domestic market, they have to follow the restrictive policy stance of their respective central banks. In contrast, a central bank with an expansionary MP can only make an offer, but the success of its policy strongly relies on financial intermediaries and the company sector. That is why central banks rather fear deflation while they are strong in counteracting inflation.

The asymmetric power of central banks might also partially account for the long-term trend in inequality: The most vulnerable groups of society are first and foremost squeezed during economic downturns or periods with restrictive policy, but these groups are not lifted back up to their pre-crisis social and economic status during expansionary phases. The negative impact of the downturn is not necessarily reversed. Thus, the long-term distributional effect of monetary policy over the business and financial cycle is not netted out; to that effect rising wealth and income inequality show hysteresis effects.

We suggest that MP is not neutral, neither in the short-term nor in the long-term, and that this non-neutral distributional effect is distinct from what is prevailing and reflected in the literature on QE. Accordingly, distributional impacts of MP in general and QE in particular should be of concern to central banks and be included in future academic research. Not least because

inequality might also reduce the operation of the monetary transmission channel, limit the multiplier effect of aggregate demand and hence dampen the expansionary effects of MP on growth. Moreover, inequality might augment financial market instability or as Haldane (2012, p. 2) puts it: “We have seen, first, inequality-induced crisis and, latterly, crisis-induced inequality.”

As stated above, QE might have different impacts on income and wealth inequality in different countries and different periods. Thus, it seems reasonable to both advance the theoretical framework and comparative country analysis to cover the distributional impacts of MP. Regarding the theoretical framework, there is a lack of incorporation of gender impacts of MP in general and QE in particular in the analysis.

In a recent article, Young (2018) provides some tentative insights as to whether unconventional MP by central banks has a gender bias that favours men over women. She relies on the Discussion Paper of the Deutsche Bundesbank (2014) which utilizes the results of the ECB Household Finance and Consumption Survey (HFCS) of 62,558 households across 15 euro-zone countries. The Bundesbank study analyses how households choose to allocate their wealth across asset classes and asks if there is a systematic relationship between underlying household characteristics and asset holding patterns across countries. While HFCS permits researchers to study the allocation of wealth across different household types, the data is not individualised, but aggregated at the household level. In other words, the value of the reference person applies to the entire household making it difficult to ascertain the intra-household distribution of wealth and the decision-making power within such households. The Deutsche Bank study is further limited in that the gender reference person across the socio-economic variables is male. As a result, the gender bias in terms of participation in risky assets calculated from a probit model (probability model) can only be inferred by making some assumptions.

Nevertheless, it is pretty safe to assume that, on average: i) single parents are more often females than males; ii) a lower education level is more common among women; and iii) women have less wealth and income (lower quintile of wealth and income). Discovering an asset bias, a phenomenon which would show whether males as a reference person, the better educated, those with higher income, or those that own inheritance are more likely to benefit from an increase in the value of shares, bonds and mutual funds, the results suggest that wealth and income distribution are both significantly correlated with the amount of exposure to risky financial

assets, especially in the higher quintile. This holds for the Euro area and for most member countries (Deutsche Bundesbank 2014: 20). In terms of risky assets, the lowest quintile owns 3 percent, whereas the top 5 percent owns 55 per cent. In terms of single parent households (presumably there are more women in this category), there is less likelihood that they participate in risky financial assets in 12 of the 15 member states. Households with the highest level of education have investments in risky assets at a rate four times higher than lower educated households. While these insights are tentative, they nevertheless suggest that MP can have distributional effects benefitting the wealthier quintile (on average more men) at the expense of the poorer strata of society (on average more women).

Except for this preliminary study on the gender effects of QE, to our knowledge none of the central banks, central bank board members, and affiliated researchers have included the topic of gender impacts of unconventional monetary policy in their speeches or papers. As a result, gender impacts are neither considered in the empirical studies, nor are they taken into account in policy formulation and policy design. This structural neglect of gender impacts in the theoretical foundations and the design of monetary policy reveals blind spots which are to be explored further in order to deepen our understanding of the operation of monetary policy and in particular of QE and to identify the gendered impacts of such policies.

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